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COMMERCIAL CAR JOURNAL

THE MAGAZINE FOR FLEET OPERATORS
DECEMBER 1942

BEHIND BATTLE LINES

With complete and modern facilities, vast ground crews operate behind the lines to keep fighting equipment in fighting trim. And the work of this great Service Army is most vital to Victory. In this tremendously important job, REO has a major part. Giant Reo trucks, like the one here shown, deliver typical Reo performance in retrieving tanks on the battlefield and transporting them to available service facilities.

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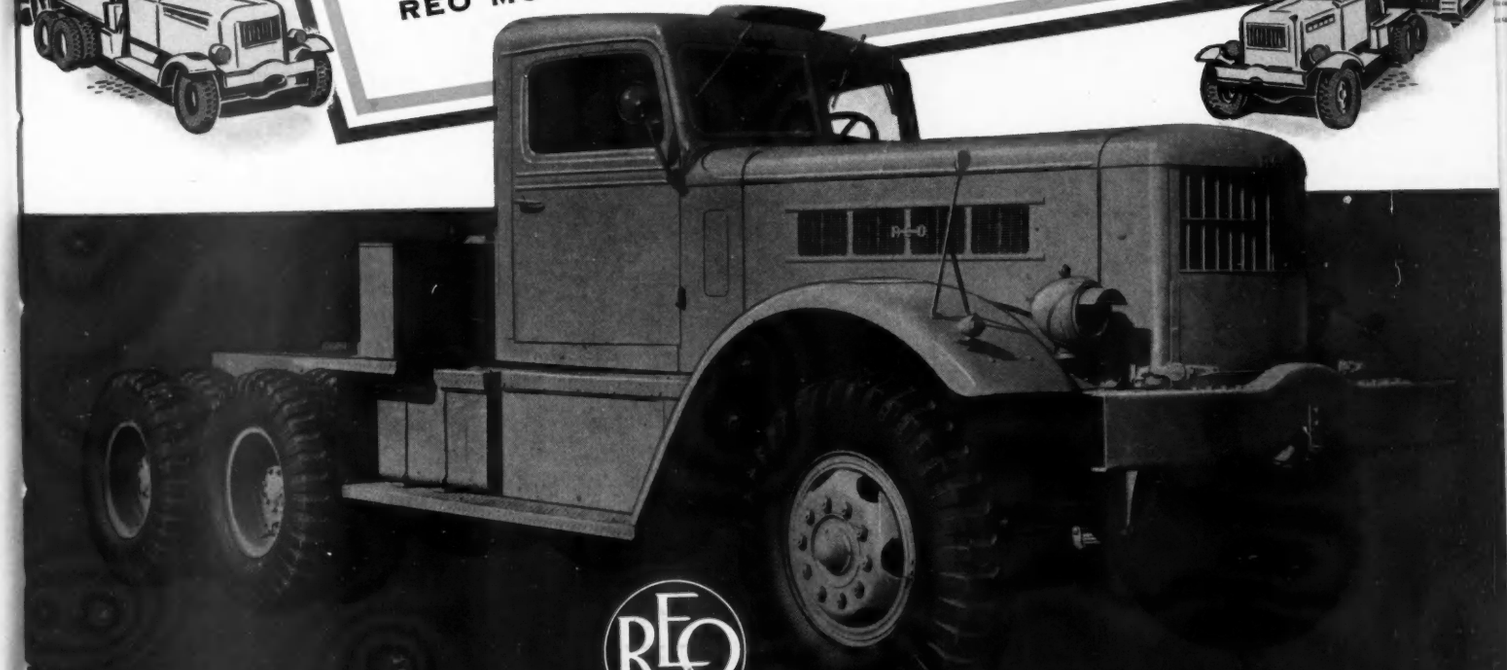

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Acceptance under the Act of June 5, 1934, authorized December 18, 1934. Published monthly

Member C.C.A.

Vol. LXIV Philadelphia, December, 1942 No. 4

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SUBSCRIPTION RATES: United States and United States Possessions and all Latin-American countries—$2.00 per year. Canada and Foreign—$4.00 per year. Single copies—25 cents. April issue, $1.00.

Owned and Published by

CHILTON COMPANY

(Incorporated)

Executive Offices

Chestnut and 56th Streets, Philadelphia, Pa., U. S. A.

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Both CALL FOR EFFICIENCY

● The military uses of Dole Thermostats — economizing engines, gas and oil — only emphasize their value on civilian trucks. The army's supply lines, after all, begin with the old trucks still on their regular jobs supplying war plants and workers.

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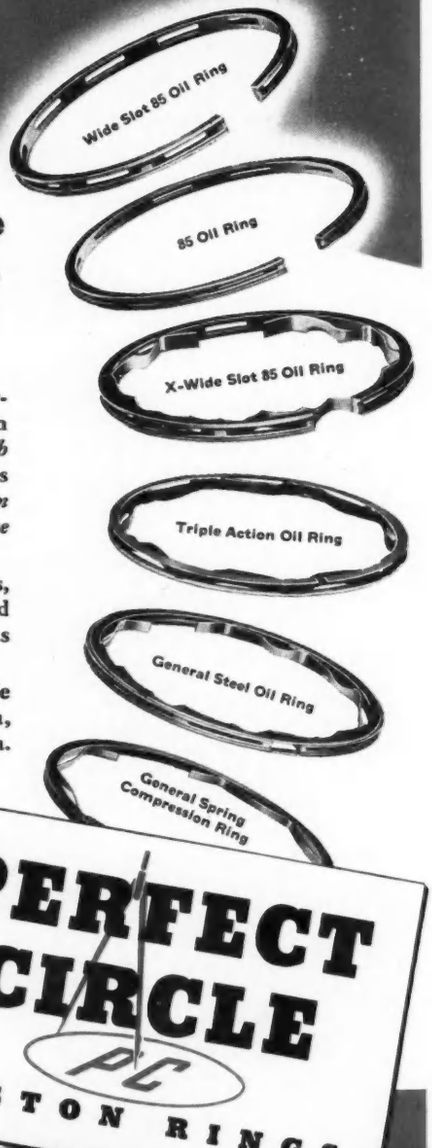
THERE IS NO SUCH THING AS A CURE-ALL!


Wide Slot 85 Oil Ring
85 Oil Ring
X-Wide Slot 85 Oil Ring
Triple Action Oil Ring
General Steel Oil Ring
General Spring Compression Ring

Reason enough for the druggist's extreme care in using the right combination for each prescription!

ON THE same basis, no *single* ring combination of *any make* is a cure-all to stop oil pumping and restore power in *all* trucks. For it takes the right combination—for *each* engine and type of service—to provide a full degree of economy, plus *longer life* of the piston rings and cylinders.

Fortunately, Perfect Circle engineering service solves this perplexing problem by offering to fleet Maintenance Superintendents the new Perfect Circle Diagnosis Plan.

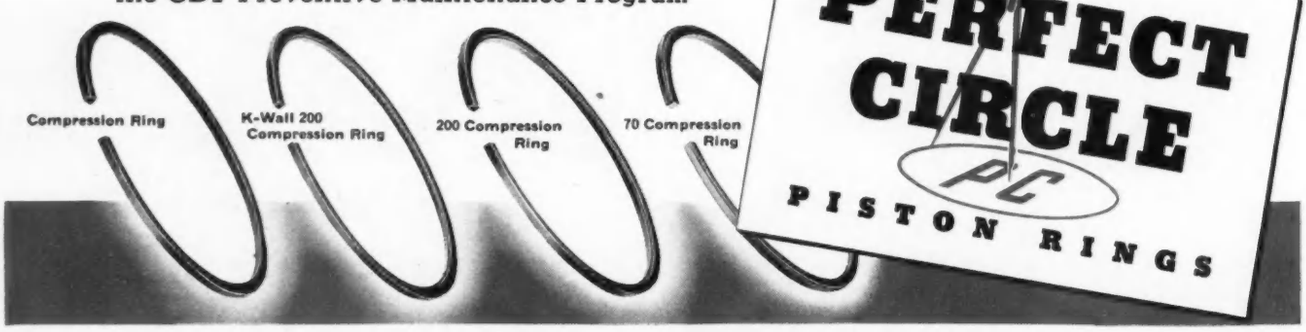
Under this plan, it is possible to select from more than 100,000 different piston ring combinations. You can choose the *right combination for each specific make and model.* Combinations are available for the particular *condition of the engine* and for the *type of service* to which the engine is subjected.

Longer service from piston rings, pistons, and cylinders is thus assured ... and oil and gas costs go down as performance goes up!

Write for details. The Perfect Circle Companies, Hagerstown, Indiana, U. S. A. and Toronto, Ontario, Canada.

★ ★ ★

HELP WIN THE WAR! Co-operate with the ODT Preventive Maintenance Program



Vol. LXIV DECEMBER, 1942 No. 4

WASHINGTON RUNAROUND

Re Certificates of War Necessity: A Duty Performed . . . Disappointments in Store . . . CWN Statistics . . . The Routine of Appeals . . . The Keeping of Records; 21—A Political Issue? . . . OPA Thunderclap . . . A Bit of Lightning . . . A Dark Cloud . . . Outline of the Future . . . What Are Essential Goods? . . . Used Truck Freeze Postponed . . . 35 M.P.H. Limit Stands . . . 100% Parts Output in Sight . . . Fleets Can Inspect Tires . . . A Blackout Brainstorm

By GEORGE T. HOOK, Editor

A Duty Performed

Although annoyed and exasperated by the amount and nature of the paper work involved, the better part of 3,300,000 truck operators did their duty by Uncle Sam during October and early November and applied for Certificates of War Necessity as required by ODT Order No. 21. But little did they realize what annoyance and exasperation were in store for them. Inside dope picked up during the latter part of November indicated that truck operators would have to face some unpleasant developments.

Disappointments in Store

Many operators were destined to be disappointed with the amount of mileage allotted them in their Certificates of War Necessity. Originally it was the intention of ODT to issue initial Certificates perfunctorily because officials assumed there would not be time in which to study the application data carefully, figure out the load factors and allot mileage on that basis. But operators filed their applications so slowly and so late that ODT, geared up to get all the Certificates out before Nov. 15, found itself with the manpower and the time in which to "tailor" the Certificates. Postponement of the effective date to Dec. 1 afforded more time. Around the middle of November one ODT official was asked if operators were being allowed all the mileage they requested. His vehement "Not by a long shot" indicated that the reductions would provide many operators with disappointment.

CWN Statistics

If you are interested in statistics, here are a few: ODT figures that there are 3,300,000 truck owners who should apply for Certificates of War Necessity. As of Oct. 21 applications had been received from only 200,000. As of Nov. 15, the original effective date of Certificates, 2,500,000 applications had been received. In other words, approximately 25 per cent of all operators had not yet filed their applications. Studies of the early applications indicated that about 86 per cent of the applications were improperly or inadequately filled out.

(Turn to Page 138, Please)

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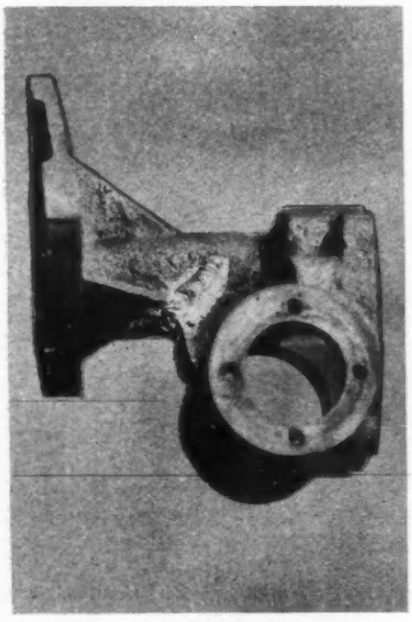
Tie-rod ends salvaged by brazing worn surface

Clutch throw-out collar saved by brazing ears

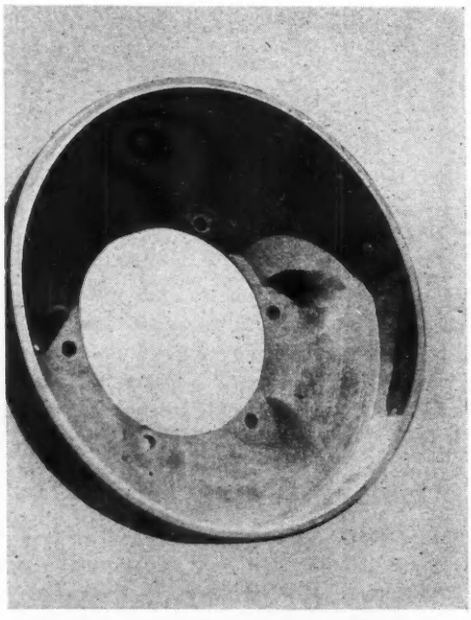
Like all large fleet operators, Dugan Bros., Inc., has always practiced salvage as an economical and efficient means of operation. Now however with the war and curtailed parts, it has intensified its salvage program, and has developed some new ideas in salvaging parts which should be of interest to other fleet operators.

1. **Bodies: repairing of damaged panels on steel and ply-metal jobs.**
2. **Springs: welding of spring hangers.**
3. **Shackles: shackle-pins and rubber bushings made as good as new.**
4. **Camshafts: electric welding of worn cams.**
5. **Cylinder Heads: a method to make the weld on cracked heads last.**
6. **Fuel Pumps: saving pumps when the arm becomes worn.**
7. **Steering Cross Shafts: a method of salvage which makes the shaft as good as new.**
8. **Brake Drums: here is a method to make a good one from two old ones.**
9. **Flywheel Ring-Gear: how to save a ring-gear with broken teeth.**
10. **Starter Armatures how to repair worn shafts and get double life.**



The steering gear housing, shown above, was cracked. A simple welding job made it usable

This universal joint flange was saved by brazing worn surface and then grinding to size



Brake drum repaired by using flange cut from another drum. The flange is riveted inside

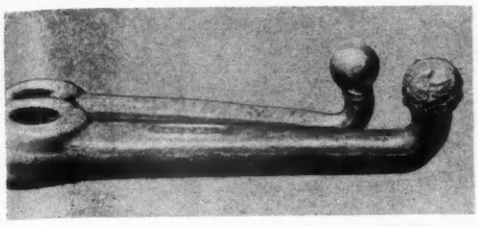
DUGAN DIGS DEEP INTO

F. C. Benitz

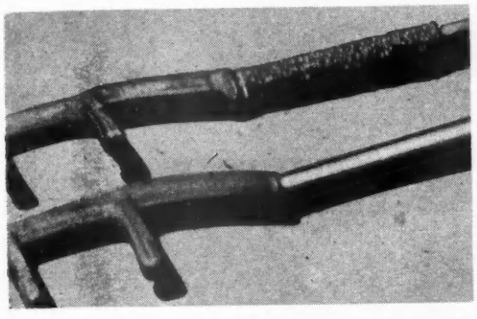
WE are faced with the same problems that all fleet operators are today: to conserve, reclaim and repair every part that we can. With this thought in mind, we are making a more intensive application of the methods which in the past we practiced as a regular part of our job. Every part worth saving is repaired and used. Parts which cannot be reclaimed or used in any way are disposed of in accordance with the recommended plan of the Salvage Section of the War Production Board.

We feel that we are doing everything possible to conserve critical war materials, and at the same time are keeping our fleet operating on an efficient basis. This is no small problem because we operate over 1500 trucks, 50 tractor-trailers and 35 passenger cars, covering a territory which includes parts of the states of New York, New Jersey, Connecticut and Pennsylvania.

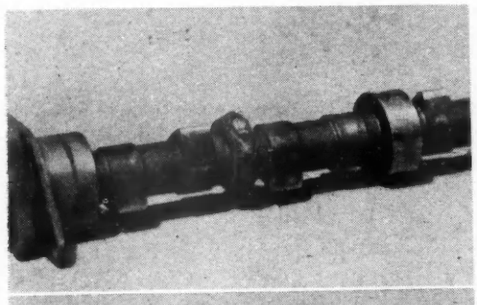
Besides our main shop here in Newark, where all overhaul work is performed on our entire fleet, we also

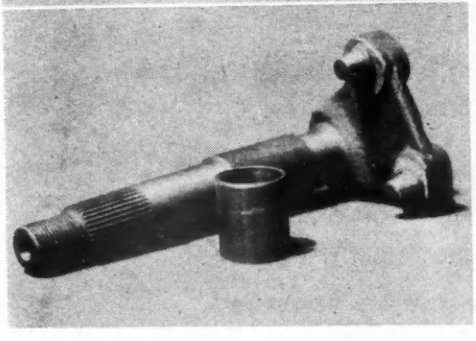


Worn pitman arms saved by welding ball ends

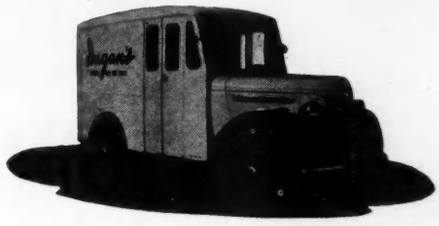


Two clutch throw-out shafts saved by welding





Camshaft, above, saved by welding. Steering shaft, below, was ground; used with bushing



helper and one washer. All preventive maintenance and lubrication work is taken care of on the trucks in each district by these various shops. Mr. J. Lempke is in charge of all our district shops.

To insure maximum service from each part, no new parts are issued by our stockroom until the old part is examined by the shop foreman and a decision made as to whether it is to be repaired or scrapped. If his decision is that the part can be repaired, then he determines the method of repair to be used. If he decides the part should be scrapped, then he directs what part of it can be salvaged and how. Every salvaged item is used in some way, only the part that we cannot use in any way is finally scrapped.

Bodies

About 75 per cent of our fleet is composed of trucks which have custom bodies made of ply-metal. In the past when a panel was damaged, we would remove it and renew with a new panel, now however we fill in the damaged part with solder, grind the surface flush and repaint it. On the remaining 25 per cent of our fleet we use standard stock bodies. When any damage occurs to the panels of these bodies, we pound out the damaged panel, cut out the damaged section and spot-weld a new section in. The joints are then filled in with solder and the surface is ground flush and repainted. Whenever possible, we use a section of a panel which we have salvaged from another damaged body.

Springs and Shackles

When any breakage occurs to a spring, we renew the broken leaves, if not more than three or four are damaged. If more leaves than this are broken, we renew the entire spring and save the good leaves to build up other damaged springs. In the past when spring hangers became worn we would replace them with new ones. Now, however, we fill in the hanger by welding and then ream them out to size. This method has proved to be entirely satisfactory, and has saved not only material but also a considerable amount of time. Worn shackle pins are built up by welding, and then turned down to the proper size. These reclaimed shackle pins are giving us almost as much service as

(Turn to Page 87, Please)

PARTS SALVAGE

maintain 22 district shops, scattered throughout our territory. In our main shop we employ 30 mechanics, 5 helpers, 1 welder, 1 blacksmith and 1 machinist. Our main shop foreman, Mr. John Gesin, deserves credit for many of the ideas which have been worked out for the reclaiming and repairing of parts.

Each of our district shops has a personnel of one mechanic, one

No new parts are issued by the stock room of this bakery fleet shop until every means of salvage has been tried

by F. C. BENITZ
Transportation Manager, Dugan Bros., Inc., Newark, N. J.

Showing the proper method of pressure-flushing the radiator. Flush in reverse direction

PUT THE HEAT ON THE COOLING SYSTEM

What must be done to obtain more efficient results from cold weather operations and at the same time preserve vital parts that can not be replaced

THE coming of winter suggests again the need for servicing the cooling system for cold weather operation. This necessary procedure takes on added importance this year because the cooling system comprises parts, made of critical materials, some of which cannot be replaced.

Proper maintenance of the cooling system will, therefore effect the conservation all good operators are striving to achieve. This conservation will embrace not only the parts making up the cooling system but other factors as well.

A clogged, inefficient cooling system will waste gasoline and overheat the engine. Overheating from neglect of the cooling system often carries heavy penalities, such as burnt valves, scored pistons and cracked cylinder heads. Overheating may cause lubrication to fail due to high temperatures. Oil sludge, etc., will form, causing piston ring and valve sticking, irregular engine operation and excessive wear of moving parts.

A well-planned servicing of the cooling system helps general performance and minimizes costly road delays. The amount of care required is small compared with the benefits derived. Cooling system care can be included in any preventive maintenance program to the benefit of both operation and economy.

The entire cooling system, which includes cylinder block, fan, water pump, radiator and thermostat must function properly as a unit. To accomplish this, systematic and periodic inspection of each unit is necessary.

Here are a few hints that any operator can use as a basis for a periodic routine check of the cooling system.

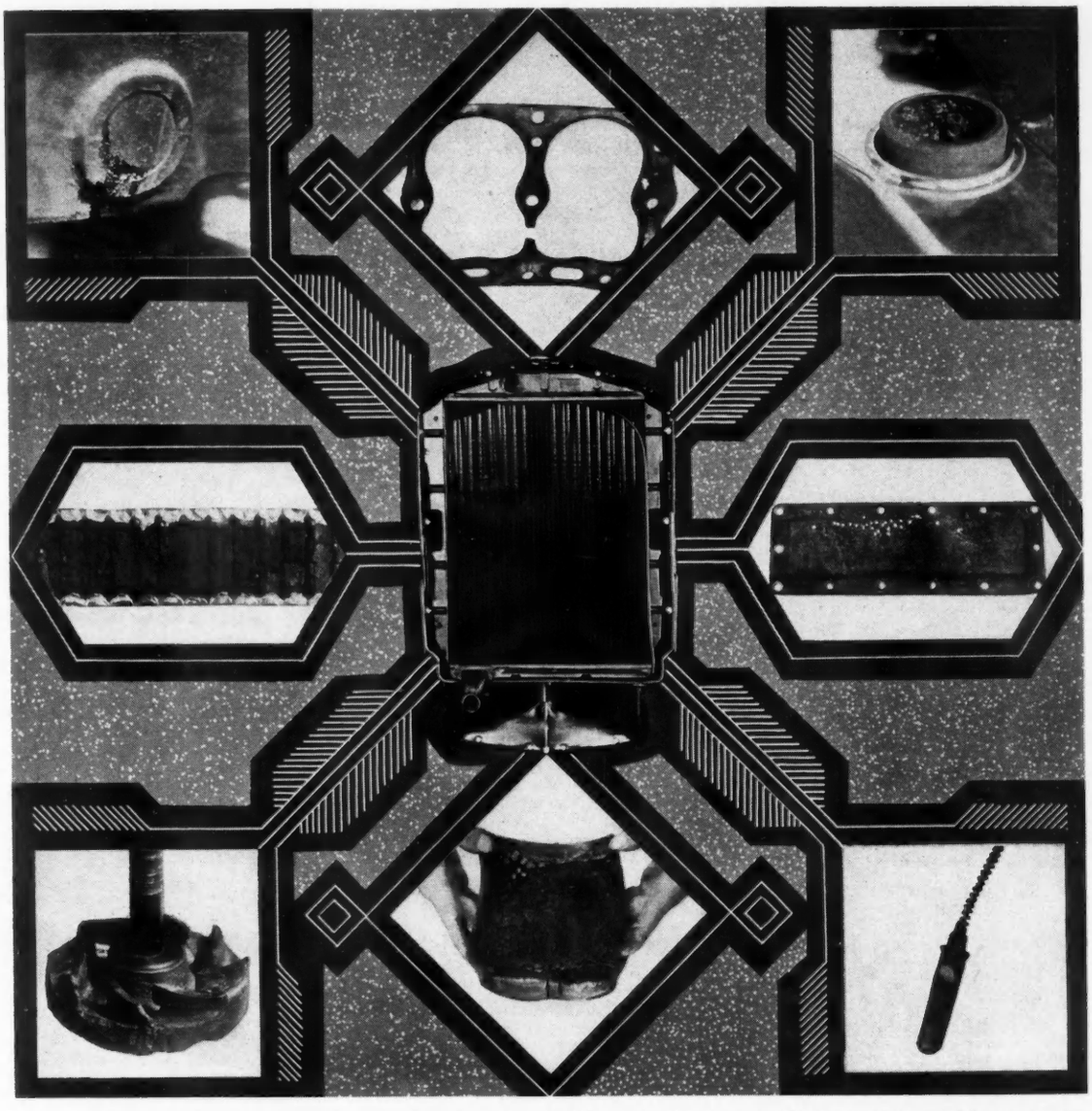
Radiator Core

Check radiator core carefully before cleaning. Tell-tale white or rust stains are evidences of a leak in the core. Repair where necessary.

If radiator needs painting, spray with special radiator paint. Do not use paint mixed with oil, as this type will form an insulation on core and prevent dissipation of heat.

Check the radiator mountings. Many radiator leaks are due to strains and shocks from front-end vibrations. If the radiator has a spring bolt mounting, check for broken springs and stripped threads. If mounted on rubber, be sure rubber pads are in good condition and not worn or spread out. Rust, grease, and road dirt collect at this point and the life of rubber is materially shortened.

Check the radiator over-flow pipe



Rogues' gallery, starting at upper left and going clockwise: Leaking expansion plug—seal before installing anti-freeze; broken head gasket lets solution into crankcase to cause trouble; rust and mud in filler neck indicate need to clean and flush; engine side-plate, damaged by rust; corroded temperature bulb will not register correctly; hose in bad condition—rubber particles will break loose and clog core; corroded water pump impeller indicates need for cleaning cooling system; same for clogged radiator core

and make sure it is open. If the tube is not open, either replace tube or reshape.

Check radiator cap and gasket. Replace if condition of either is not good.

Cleaning Cooling System

Drain and check the radiator cooling system at regular intervals. This should be done particularly before using anti-freeze, and again when the solution is removed. Cleaning the system is a job that is divided into two major parts, and consists of cleaning the radiator and the block. It is a waste of time and money to clean the radiator without also cleaning the cylinder block. Rust deposits and other sediment which collect in the water passages of the block will be picked up by the water circulation and carried to the radiator so that it will become clogged again, and the job will have to be done over.

There are several cooling system cleaning compounds on the market which do a good job, and care should be taken to follow the manufacturer's instructions carefully. The radiator and block should be flushed separately. A pressure gun is needed so that water backed by air pressure can be used to force out any sediment that will not drain out naturally. Both radiator and block should be flushed in the reverse direction to normal flow.

If a similar procedure to that outlined is followed, all but the most severe cases of clogging will yield, and further cleaning will be unnecessary. In some severe cases of radiator clogging it is sometimes necessary to remove the top and bottom radiator tanks from the core and clean out the water passages with a strip of steel.

It is advisable to use an inhibitor immediately after thoroughly cleaning the cooling system. This process consists of introducing certain chemicals or chemical combinations into

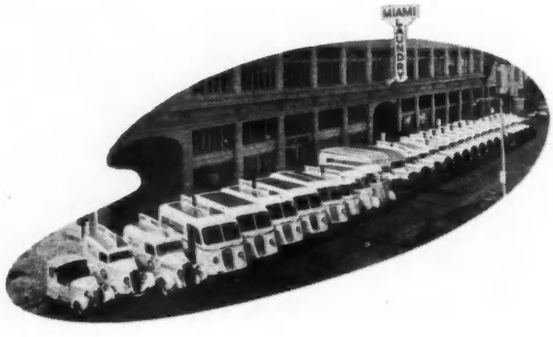
(Turn to Page 90, Please)

Miami Laundry garage front suggests cleanliness

PRE-WAR "PROFIT CONSERVATION" FITS PRESENT

Miami Laundry fleet's prizes for high gasoline mileage plus a low dollar-per-thousand-miles tire goal, oil salvage, and a thorough PM pay war dividends

Parvin H. Winchell



by PARVIN H. WINCHELL
Fleet Superintendent, Miami Laundry Company, Miami, Florida

SUCCESSFUL laundry operation always has been a matter of accumulating small profits. Therefore, long before "Pearl Harbor," the Miami Laundry Company began the systematic saving of gasoline, rubber and automotive machinery.

Now, it looks very much as if the conservation program we set up five years ago, in order to establish a better balance between operational income and delivery outgo, may help us in making our rolling stock last for the duration.

One of the largest institutions of its kind in the southern states, the Miami Laundry engages in all branches of the dry cleaning and laundry business, including a diaper service of which it is justly proud. The firm's geographical coverage takes in Hollywood and Fort Lauderdale, as well as the closely-grouped municipalities of Miami, Miami Beach, Miami Shores, Coral Gables and South Miami.

In order to give service within the 30-mile radius contained in this territory, the company operates a 63-unit truck fleet. This consists of 22 ¾-ton c.o.e. jobs; 18 ½-ton c.o.e.'s; 2 1-ton, and 21 1½-ton units.

In addition to its truck fleet, the firm operates for the business use of its executives and route supervisors nine passenger cars. During recent years, the fleet, collectively, has traveled an annual total of more than a half-million miles.

The laundry's truck-maintenance department is housed in a 100 ft. x 150 ft. concrete-and-steel garage building, to which recently was added a 25 ft. x 150 ft. extension, providing access from two parallel streets. Large windows furnish ample daylight to work bench, wash rack, paint section and hydraulic lift. For night work these portions of the shop are illuminated by fluorescent fixtures. One corner, at the front of the building, is partitioned off into a 10 ft. x 10 ft. office.

Although the garge personnel, besides myself, consists of only two men, neither of whom is a first-class mechanic, we take care of 98 per cent of all fleet maintenance and repair requirements for trucks and passenger cars, right here in our own shop. We seldom send out work to be done elsewhere except major body repairs, such as result from accident, cylinder-reboring and wheel-and-axle work.

Several factors make it possible for us to service a 72-unit fleet with so small a personnel. Among them are a labor-saving arrangement of shop facilities, excellent shop equipment and the reduction of as much of our work as we can manage to a scheduled routine. The fact that we have

Gassing is handled indoors, just inside entrance

a low percentage of accidents and serious road failures out of an annual total of approximately 100 service calls helps, too.

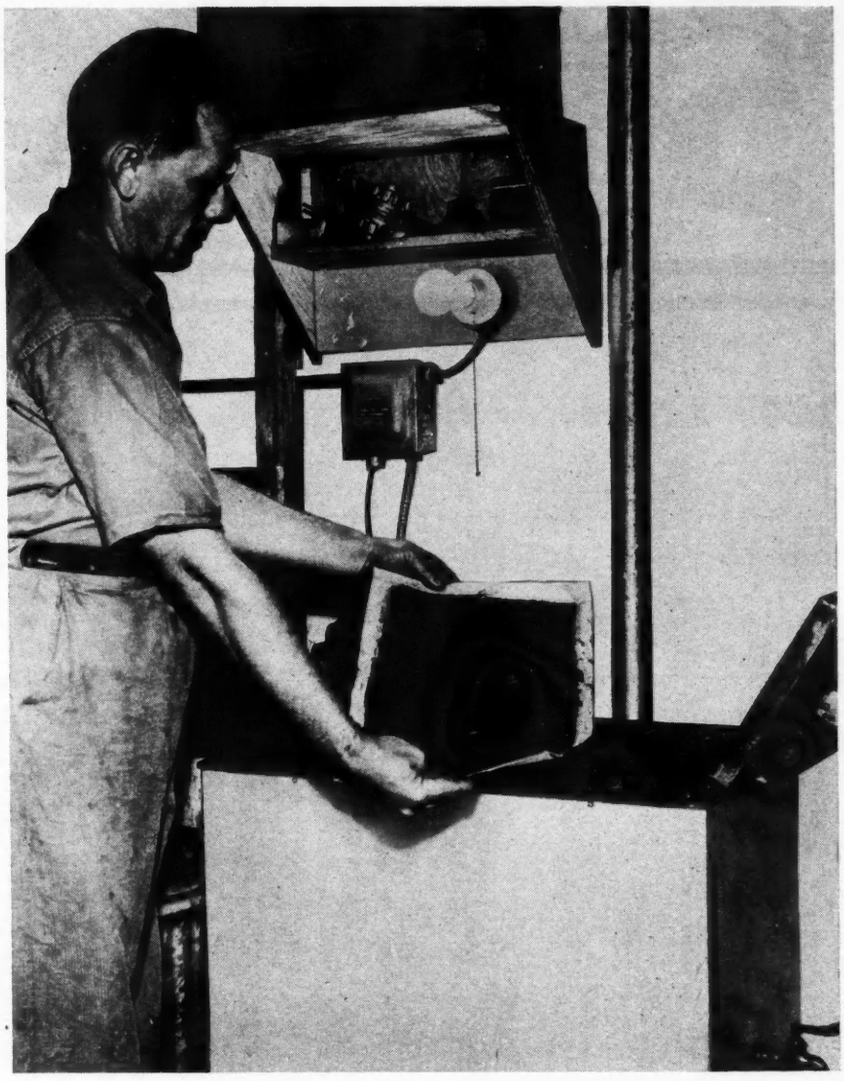
Our route salesmen are hired entirely on their ability to sell laundry and dry cleaning service, not as driver mechanics. Therefore, they are instructed to report to this department by telephone any mechanical difficulties which may develop while they are covering their routes. Usually, we answer such calls with a spare truck. Often the trouble is trivial, perhaps no more than a clogged fuel line, which we can clean in a matter of minutes. If the repair is one that will take time, we transfer the route man's load, and let him go on his way. We do not have enough wrecks and tow-ins in the course of a year's time to make it worth our while to provide special equipment for handling them.

Whenever one of our salesmen has a collision, he reports it at once, whether or not his truck has suffered damage. He then waits until someone from the maintenance department, usually myself, gets there. We then can make an immediate estimate of any damage done to either vehicle. We, also, can get the names of any witnesses.

We have found that this system of checking accidents, as soon as possible after they occur, has helped us considerably in our dealing with insurance companies. Facts obtained at first hand are hard to dispute. And an on-the-scene estimate of damage keeps extra items from creeping in.

In order to reduce lost motion in connection with our maintenance work to a minimum, we have grouped practically all of our fixed servicing equipment within a 25-foot zone at the front of the garage.

(Turn to Page 70, Please)



Crankcase oil is salvaged by refining. Cost of operation runs about 8 cents per gal. of oil processed

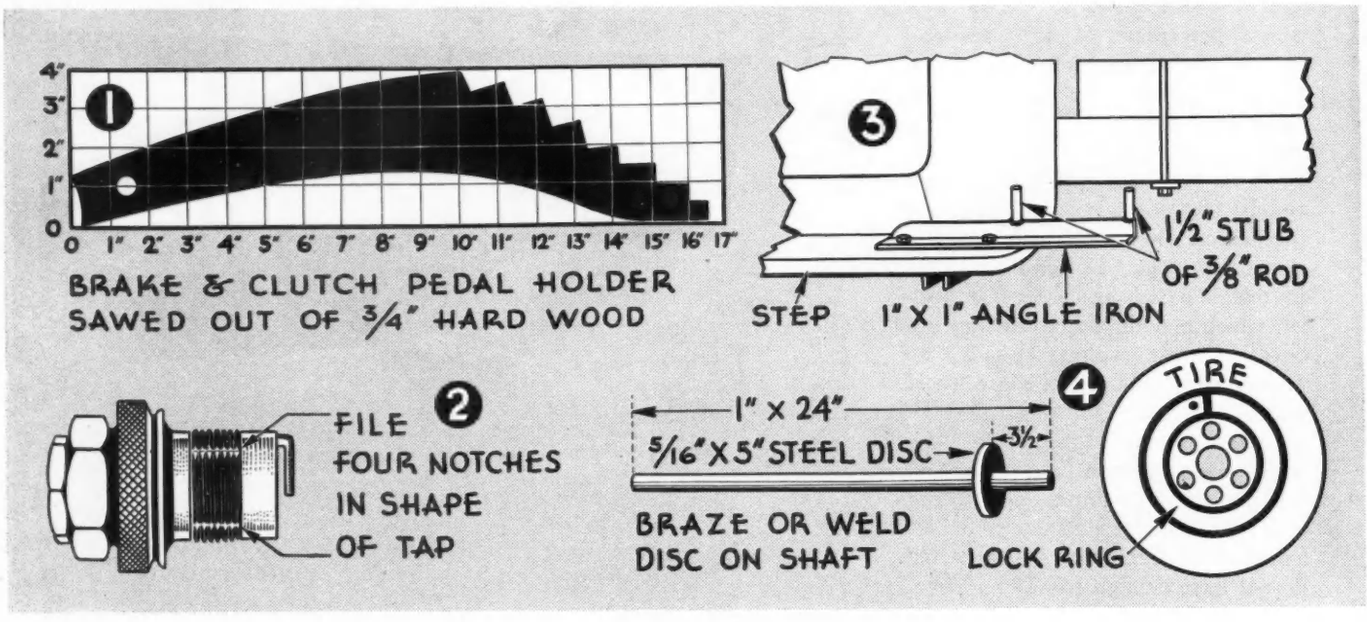
A plan that originated with this laundry's sound business objective to keep fleet costs low, to realize a profitable balance between net income and operating costs, has resulted in a practical plan suitable for war-time maintenance operation.

Good shop equipment; a definite, scheduled preventive maintenance routine; crankcase oil salvage; adequate records; a good tire conservation program; a fuel savings plan that provides incentive for drivers and control by route supervisors; a continuous driver education program and the other factors outlined in this article are worth close study by all fleet operators.

$5 **Commercial Car Journal will pay $5.00 for acceptable shop hints and $5.00 for unusual parts salvage tips. Send in as many ideas as you have to the editor. Don't underestimate your ideas. Let the editor be the judge. A photograph or a rough sketch and simple explanation in your own words are enough. CCJ will polish them up for publication. Use this opportunity to earn extra money to buy Victory bonds and help win the war.**

SHOP &

SHOP HINTS...



1. Pedal Holder

by R. D. Shady, Colorado Springs, Col.

When working on the brake or clutch and it becomes necessary to depress either pedal, I use a pedal holder which I made and have used for many years. I find it very effective and have yet to find one job that it will not fit. It is sawed out of any tough hard wood, ¾ in. thick. The accompanying sketch shows a pattern of the holder laid-out in 1-in. blocks. The hole in the end is for hanging the holder on a nail on the tool board. Either end can be used up to dash or down to pedal.

2. Tapping Spark Plug Holes

by Marcel Le Blanc, Marrero, La.

We had several engines in our shop where the spark plug threads in the cylinder head were ruined by the crossing of the threads, and would require the use of a tap to renew the threads. We tried several stores in the city, but found that we could not purchase a tap of the size that we needed. So I made a tap to do the job. I used an old spark plug and cut four notches with a 1/16-in. half-round file, in the shape of a tap, and then case-hardened the plug. This made a tap which did the job and saved considerable time.

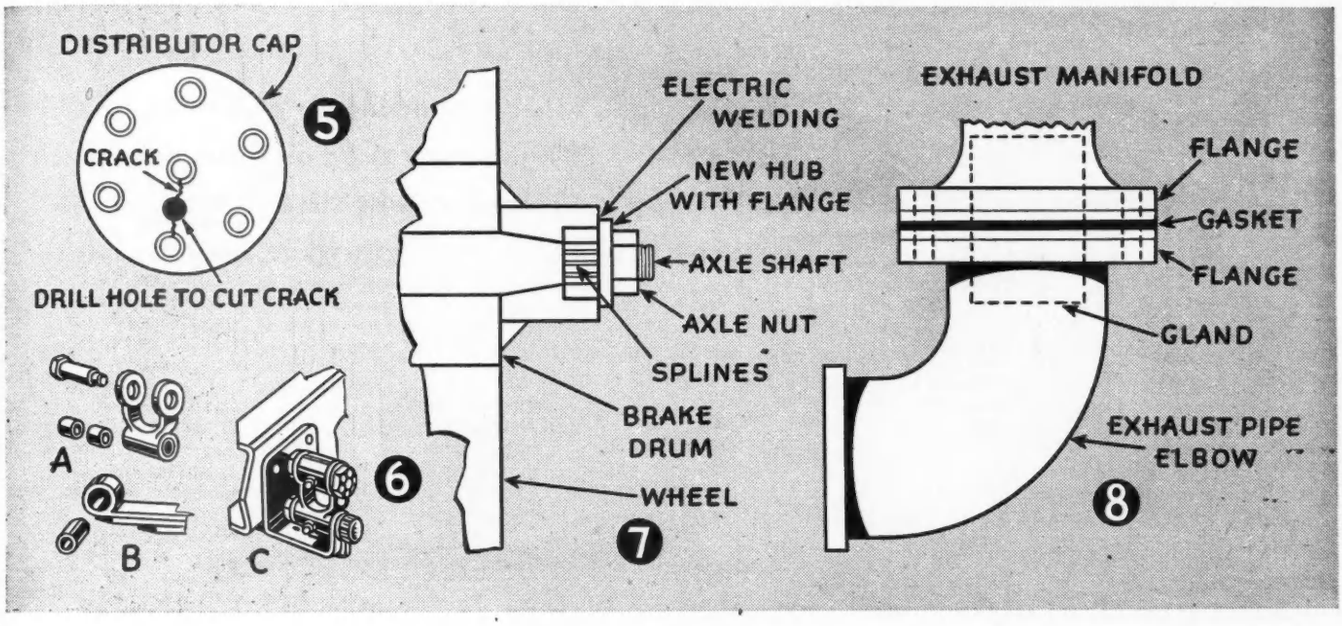
3. Truck-Mounted Foot Scraper

by Adams Oil & Gas Co., Centralia, Ill.

Our trucks must be used in mud, as found around many construction projects, and we have found that accidents sometimes occur when a driver's foot slips off the brake or clutch pedal due to mud on his shoes. To overcome this and to enable our drivers to clean their shoes readily, we have equipped our trucks with a simple foot scraper. It is bolted to and forms a rearward extension of the running board. The scraper is made up of a short section of 1x1-in. angle iron, at the outer end of which is welded a 1½-in. stub of ⅜-in. rod as a guide and also to clean the side of the shoe. A second, similar peg, some 6 in. along the angle iron, cleans the other side of the shoe. Held to the running board by bolts through the web of the angle and the steel step of the truck, the scraper can be quickly removed, if desired, without affecting the normal use of the step. Being mounted behind the portion of the step normally used in entering or leaving the cab, the scraper does not slow down the driver, yet is always ready for his use when conditions require it.

SALVAGE HINTS

...SALVAGE HINTS



4. Tire Lock Ring Tool

by Preston Coleman, Norristown, Pa.

When removing tire locking rings I sometimes ran into tough ones that were rusty and hard to remove. I made a tool to help me remove and install these tough ones. I used an old truck gear shift handle which was 1 in. in diameter by 24 in. long, then I cut out a steel disk, 5/16 in. thick and 5 in. in diameter, and drilled a 1-in. hole through the center of it. I then welded the disk on the shaft 3½ in. from one end. The tool is used by hooking it in the openings of the tire rim. The lock ring can be pried down and out of tire rim when removing tire. When installing tire, the lock ring can be pried down and rolled in place with the tool, a lot easier and faster than the usual way.

5. Salvaging Distributor Caps

by Alva C. Stark
Alfred M. Lewis, Inc., Riverside, Cal.

Here is a very simple method for repairing a cracked distributor head cap. A crack in the cap extending from the center tower to any of the outside towers affords a path for a shorting spark to travel. This is a common type of cap failure and in the past has meant discarding many caps. Using as large a drill as the clearance between the towers will allow, drill a hole over the crack and through the cap, or to the depth of the crack, if the crack does not extend through the thickness of the cap. This will have the effect of cutting the crack in two. A plug made from some non-conducting material, such as cork, rubber, sealing wax, etc., may then be used to fill the hole.

6. Salvaging Rear Shackles

by Howard E. Wood, Little Valley, N. Y.

We have experienced some difficulty in keeping the rear shackles of Ford 1½-ton trucks rebushed. The spring hangers when new are equipped with two thin bushings (part number BB 5776) which wear rapidly and quite frequently the pins wear through into the hangers ruining pins and hangers. When this occurs, it takes but a few minutes' work to bore the hanger to the new size and press in the steel backed bushing (part number BB 5781) which if not available new, can be extruded from the spring eyes salvaged from broken main leaves. This installed. The parts referred to are shown in the illustration at A, B and C.

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HUBER & HUBER'S ECONOMY

Tune-ups and other gas economy practices saved over 3,700 gal. and raised oil average to 248 m.p.q. Intensive war-time salvage program also produces worth-while savings

Floyd O'Neal

by FLOYD O'NEAL
Maintenance Chief, Huber and Huber Motor Express, Knoxville, Tenn.

HOW to obtain high fuel efficiency with wartime gas is one of the biggest problems a fleet maintenance man has. Every tankful is different in octane rating and in quality and that means tuning the motor more often and more carefully to adjust carburetion and ignition to the difference.

Despite the constant octane changes, our mileage is getting better nearly every month. That's why we're pretty proud of our gas mileage.

For the month of June, 1941, for example, on the mountainous Knoxville-Atlanta run, our heavy-duty tractor-trailer outfits averaged 6.82 miles per gal., using high test gas.

For the month of June, 1942, on the same run, carrying slightly heavier loads, and despite poorer gas, we averaged 6.95 miles per gal.

That increase of .13 miles per gal. doesn't sound like much but last year our system ran about 20,000,000 miles and that small saving represents over 3700 gal. of gas in a year. Huber and Huber keeps its drivers on a more or less competitive basis by posting the monthly tonnage-gas-mileage figures for each on the bulletin board. This is really a cost of operation competition, too, since other details such as oil, parts, labor, grease and tonnage hauled are posted.

Some of our newer trucks get as much as 9.5 miles per gal.

The 9.5 miles per gal. is an occasional average on the Knoxville-Atlanta run with a light load and favorable winds. During June, 1942, we have had a high of 8.13 miles per gal. on a tractor-trailer unit of medium size and weight and a low of 7.22 miles per gal. on the same type unit. On the largest unit running out of Knoxville, we had a high of 7.30 miles per gal. and a low of 6.23 for the same month.

This excellent mileage has been due to a number of things:

1. Keeping speeds below 40.
2. Timing ignition to the fuel.
3. Putting drivers on schedules to cut out idling.
4. Keeping carburetors and motors in top condition.

The first of these, keeping down the speed, is accomplished by governors, trip schedules, road cars and education of the drivers.

The second is a more technical job. We time the ignition to the fuel using the octane rating as a rough guide for setting, then completing the adjustment with a motor analyzer. The variation in gas has

HUNT

EDITOR'S NOTE: This is the second of two articles by Floyd O'Neal outlining the maintenance methods employed by Huber and Huber to keep that fleet rolling at top efficiency within wartime operating restrictions. In the October issue Mr. O'Neal outlined the tire inspection and maintenance methods employed by his organization.

This article reveals that, in its wartime maintenance methods, Huber & Huber is not overlooking any possibilities. Tune-ups, for example, go beyond the average ignition and carburetion adjustments. Road breakdowns are held to a minimum by rebuilding the engines from the clutch forward instead of repairing just one part at a time. Parts salvage also receives very thorough attention; nothing made of metal or rubber is discarded unless it has definitely reached the scrap stage.

There are many other excellent ideas packed into ten minutes' reading that took many years of efficient maintenance practice to develop.

Above: Huber and Huber mechanic reaming bearings. Below: Floyd O'Neal welding damaged gas tank

forced retarding the spark as much as 4 and 5 deg.

Unless you can dope your gas with tetraethyl lead you're spending money uselessly, if you expect to get better performance and more mileage from other dopes.

In addition to putting drivers on carefully timed schedules, it has been our practice to set our governors at 42 m.p.h. to encourage them to keep below 40 without running against the governor. This has saved about 10 per cent in oil and 5 per cent in gas over the past two years.

The idling problem always crops up in winter. We think schedules and education have it licked.

In the early fall. we begin getting ready for real cold weather. One of the first things we check is the spring that keeps the choke returned. A good strong spring prevents leaving the choke out and reminds the driver of our instructions: to use the choke only enough to get started.

Keeping motors in top trim pays in winter weather. A periodic check of starter load pull on the analyzer helps us keep starter motors in shape and also cuts down use of the choke.

Easy starting motors help discourage idling. Good heaters also help because the driver won't be tempted to leave his motor running to keep the cab warm.

The two recording devices we use to check up on driver habits showed that last year we had very little trouble with killing time and idling. The recorders are carried in the trailer as a piece of freight and drivers never know when they may be carrying one.

We haven't had much carburetor trouble, probably because we keep

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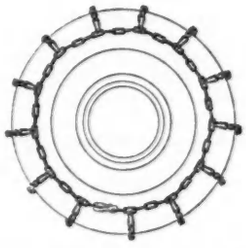
TIRE

Chains must be conserved,

THE recent order of the War Production Board prohibiting the manufacture of truck tire chains, and restricting the production of repair parts for chains, faces operators with the necessity of conserving the tire chain equipment that they now have. Every method of chain conservation and maintenance will have to be intensified in order to keep trucks rolling safely through snow, ice or sleet, and to maintain schedules.

This article reviews the factors that affect chain wear, and the methods that some operators have used to secure longer chain life.

One common cause of chain wear is the habit of some drivers of leaving chains on after the snow melts.



Cross chains equally spaced and in balance as shown give maximum life and uniform wear. Cross chain weight is evenly distributed

WPB LIMITS CHAIN OUTPUT

The WPB has issued an order (L-201) which limits the production of tire chains, chain parts and emergency unit chains. The terms of the order are as follows:

1. Definitions. For the purposes of this order:

(a) "Tire chain" means a complete metal chain assembly produced for use on a tire of a passenger automobile or a commercial vehicle for the purpose of increasing the traction of the tire.

(b) "Chain parts" means cross chains, locks, hooks, straps, plates, repair links, and side chains produced for use in repairing chains.

(c) "Emergency unit chain" means a chain assembly of the strap-on or single chain type containing not more than two cross chains per unit.

2. For commercial vehicles:

(a) On and after October 31, 1942, no producer shall manufacture any tire chains for commercial vehicles.

(b) Twelve months following October 31, 1942, chain parts and emergency unit chains may be made in quantities not exceeding 24 per cent of the total amount of metal used in the total production of all tire chains, all chain parts and all emergency unit chains dur-

CHAIN MAINTENANCE

too, and for safety's sake here are pointers on how to make them last longer

Obviously this results in the chains pounding themselves to pieces on the bare pavement. To prevent this operators must see to it that drivers remove chains as soon as road conditions warrant.

Drivers also should be made to realize that their driving habits, when their vehicles are equipped with chains, are in a large measure an important factor in chain conservation. Bad driving habits such as fast, sudden starts and stop, wheel spinning, bumping and rubbing curbs and riding in trolley tracks, will all contribute to lowering chain life.

Another bad practice that should be eliminated is that of using tire chains as a tow-line to pull another vehicle. This practice will invariably result in broken chains because tire chains are not made to withstand this strain, especially when they become worn.

Further conservation can be accomplished if drivers are provided with cross-chain repair links. Then when a cross-link of a chain breaks, the driver will be able to repair it instantly, instead of driving with the broken chain, or removing the chain entirely. Continued driving with a broken cross-link in a chain will invariably increase the wear of adjoining links. Removing the broken chain entirely will of course save the chain from any further damage, but it will lower the safety factor when the vehicle is traveling on snow or ice.

Speed is the enemy of tire chains as well as tires. Operators should point out to their drivers to go even slower than 35 miles per hour for long tire chain wear. Doubling the speed of travel increases the impact of cross chains on the road four times, and wears them out four times faster.

Too few operators realize what an important part the balancing of tire chains at the time of installation plays in getting more driving miles out of chains. Poor chain wear is usually due to an out-of-balance condition. Just how such out-of-balance conditions take place is illustrated below.

When a tire chain is out-of-balance, the centrifugal force throws the heavy portion of the chain away from

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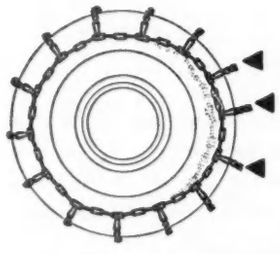
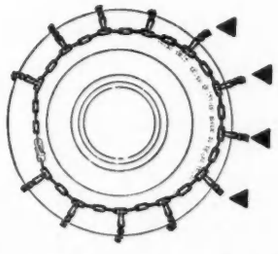
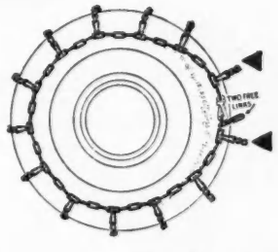


Close spacing of cross chains at end hook throws the chain out of balance and results in early failure of cross chains indicated



Wide spacing of cross chains at end hook throws chain out of balance at opposite side developing poor wear on cross chains indicated



Free links on side chain throw chain badly out of balance. This results in mileage 50 per cent of normal on the links indicated

ing the 12-month period following April 1, 1941.

(c) No producer shall manufacture any chain parts or emergency unit chains except for the following tire sizes: 6.50-20/32x6; 7.00-20; 7.50-16; 7.50-17; 7.50-20/34x7; 8.25-20; 9.00-20; 9.75-20.

(d) Notwithstanding the provisions of paragraphs (a) and (c) above, tire chains, chain parts and emergency unit chains, in types and sizes other than those listed in paragraph (c) may be produced when specially ordered for delivery by the producer direct to the consumer.

(Note—Under these regulations fleets will be able to make up complete tire chains from the chain parts available.)

3. For passenger automobiles:

(a) Twelve months following October 31, 1942, tire chains, chain parts and emergency unit chains may be made in quantities not exceeding 16 per cent of the total amount of metal used in the total production of all tire chains, all chain parts and all emergency unit chains during the 12-month period following April 1, 1941; provided, that not more than 25 per cent of the material so authorized may be used in the production of tire chains.

(b) No producer shall manufacture any tire chains, chain parts or emergency unit chains except for the following passenger car tire sizes: 6.00-16; 6.50-16; 7.00-15; 7.50-16.

WOMEN DRIVE ARMY TRUCKS

This fleet operator's experience with women drivers shows that, compared to the men, they have a better safety record, are easier to handle, are conscientious and learn quickly

Women drivers are no longer

by LEONARD J. MARQUIS

Assistant Manager, Canfield Driveaway Co., Detroit, Mich.

Leonard J. Marquis

LACK of qualified manpower became a problem for our company last spring. In peace-time we are engaged in the business of delivering new commercial vehicles to automobile dealers throughout the country. In war-time we have converted our business to the delivery of Army trucks to camps and posts in the eastern United States. Early in the war effort we had no trouble getting enough male drivers to keep the military vehicles rolling to Uncle Sam's forces. But with the draft and war industries draining available manpower, it became increasingly difficult to hire qualified and reliable men as drivers.

We were beginning to draw on the marginal labor supply, and many of the applicants were not fit to handle the responsible task of delivering reconnaissance cars, cargo vehicles and armored cars to the various military posts. So last June we took a radical step and hired six women for driveaway service. Ours was the first company in the Detroit area to employ women drivers.

I had some confidence that the move would succeed. Some years ago, when I was an automobile salesman in Adrian, Mich., I used to make trips to the factory in Detroit to drive back new cars for sale. It was an 80-mile trip. I took my fiancee along and she would drive one of the new vehicles home, a task which she performed capably. Later she became my wife. With many women experienced drivers, I reasoned that they should be able to handle the somewhat more complicated four-wheel drive Army vehicles, with a little instruction.

The first woman we hired was Mrs. Helen Harden, a 42-year-old housewife whose husband is one of our most reliable drivers. She had had some commercial driving experience.

a novelty with the Canfield Driveaway Co. The biggest single truck convoy to date consisted of three crews of six women each

Others in the first group were Doris Batchelor, a 21-year-old housemaid; Hazel Keeton, 34, a carnival employe; Eloise Sherwood, 29, who sold trucks on a used car lot; Lucile Sweeney, 31, a township clerk, and Irene McDaniels, 39, a doctor's receptionist. I placed this group under the leadership of Darley Harden and, after some preliminary instruction in the handling of Army vehicles, they took part in the operation of a shuttle truck delivery service between Detroit and Toledo, and between Toledo and the Erie Proving Ground at La Carne, Ohio. This experience proved so successful that we decided to make it a policy to hire qualified women drivers wherever feasible.

We advertise for drivers in both the male and female help wanted columns of the Detroit daily newspapers every three weeks. So far, in a six-month period, we have had 150 women applicants, of whom we have hired about 125 as drivers. We have received inquiries from women about jobs from as distant points as California and New Jersey. Our top employment figure at one time has been 36 women out of a total of 60 drivers. There necessarily is a big turnover among drivers in our type of operation, and this holds true among the women drivers as well as the men. However, the women seem disposed to stay with the company somewhat longer than the men.

The women applicants must be over 21 years of age and must have had at least five or six years' driving experience. They must be physically fit and pass a doctor's examination. They also must have a Michigan commercial chauffeur's license and a birth certificate.

Before hiring we give each applicant a short driver's test. The applicant must enter a military vehicle, start the motor, drive away and double clutch without clashing gears. Then she must back the truck into an 8-foot space between two other vehicles with a minimum of effort and without touching the adjoining vehicles. If she passes this test satisfactorily, the woman driver is hired.

Our women drivers average about 30 years of age and most of them are married. Some have husbands who are in the armed services or in war industry. Many of them learned to drive on farms, while others have driven delivery trucks. Size is no handicap. The women drivers range

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FREE PUBLICATIONS

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A selected list of the latest literature — books, pamphlets and catalogs — intended to help fleet operators solve maintenance and operating problems. They are more valuable today than ever before. All are free. To get your copies simply fill in the numbers on the postcard and mail. No stamp is needed.

L55. Piston Ring Handbook

Here is a 48-page handbook giving instructions on piston ring installations, plus other helpful information and recommendations which go to make better ring jobs. All instructions and recommendations are based upon broad, practical experience in both laboratory and the field. The handbook is divided into two main sections. The first section explains in detail the various corrections which must be made to certain engines to obtain a satisfactory ring job. The second section is devoted to general installation instructions, with suggestions for best procedures. This handbook should prove invaluable to every fleet operator. Write L55 on the post card for your free copy.

L56. Driver's Manual

Now that the conservation of trucks is vital, drivers and operators alike will be anxious to know how to improve their driving methods. To help them there is a new 16-page booklet entitled, "How to Drive a Truck," which is available free to CCJ readers. The booklet contains valuable data on proper driving methods that will be of help in arousing drivers to a serious interest in truck conservation. Operators can secure as many copies as they need to supply one to every driver in their organization. Write L56 on the post card for your first free copy and then, after you have looked it over, decide how many you need to cover your drivers and let us know.

L57. War-Time Engine Data

Operators should find very useful a booklet now offered which deals with the problem of war-time operation of truck and bus engines. The booklet explains the effects of lower octane fuel on engine performance, and tells how to make engine corrections to remedy this condition. Also explained in detail are carburetor adjustments, engine lubrication, bearing metals, causes of bearing failure and methods of bearing replacement. The problem of piston composition in relation to lubrication is also covered, as is the subject of temperature control and sludge formation. A valuable booklet for every fleet operator who is striving to keep his equipment rolling efficiently, and at the same time conserving vital replacement parts. Write L57 on the post card for your free copy.

L58. Vacuum Brake Test Manual

How to test vacuum power brakes is fully explained in a new 31-page manual now available to fleet operators. The manual fully explains the necessary procedures to be used in testing all types of vacuum power units as used on trucks, tractors, trailers and combinations. The manual is divided into two sections, one dealing with testing the system on the vehicle, and the other section covers the special tools needed for a satisfactory test. Every operator should have a copy of this manual in his files. Write L58 on the post card for your free copy.

L59. Wheel Alignment Facts

What wheel alignment is and how it affects tire wear are described in a new booklet now offered to fleet operators. A study of the facts set forth will give operators the what, why and how of wheel alignment. Write L59 on the post card for your free copy.

L60. Tips on Water Pump Seals

The subject of water pump seals and their order of assembly is dealt with in this pamphlet. It illustrates four different designs of water pump seals, and shows the correct order of assembly of each type. It will prove helpful to the inexperienced shop man in making him better acquainted with water pump seals, and how the correct installation of them will conserve critical parts. Write L60 on the post card for your free copy.

L61. Graphite Paste Sample

Here is an opportunity for fleet operators to receive a free sample of a graphite paste for sealing threads, gaskets, etc. According to the manufacturer, this paste will not freeze and connections can be opened without damage to threads or gaskets, which can be reused. The paste is insoluble in oil, gasoline, kerosene, etc. Write L61 on the post card for your free sample.

L62. Fire Extinguisher Care

Consistent with the national program of conservation, a new maintenance folder on the inspecting, recharging and maintaining of portable fire extinguishers is now offered to fleet operators. Many operators will be unable to get new extinguishers for the duration and, consequently, must keep their present equipment in good operating condition. This new folder will prove to be of assistance in keeping fire equipment ready for action. Write L62 on the post card for your free copy.

L63. Savings and Safety Bulletin

There is more than one way to conserve gas, oil, tires and also lower maintenance costs, while promoting safe operation. One method is by the use of a recording instrument which provides an automatic, graphic log of speed, time and distance of truck operation. A bulletin now offered to fleet operators describes the operation and maintenance of these instruments, and also how their use in truck operation can help to conserve vital equipment. This bulletin also outlines case histories gathered during the past two years which show actual savings by fleets who have used them. Write L63 on the post card for your free copy.

L64. Oil Filter Facts

With every fleet operator concerned about engine maintenance and the conservation of parts, here's a 12-page manual of oil filter facts which he should have. The manual explains the basic facts about oil, how sludge and lacquer form in engines, and the part that oil filters play in removing the contaminants from engine oil. Write L64 on the post card for your free copy.

KEEP 'EM ROLLING

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NEW PRODUCTS ★

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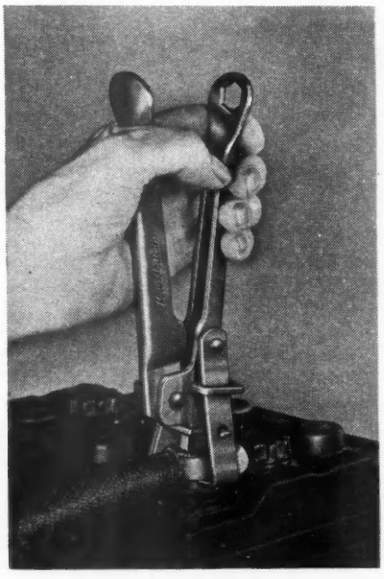
The latest in shop equipment, supplies, replacement parts and accessories developed by manufacturers for fleet operators. For more details of any product described, fill in the number on the postcard and mail. No stamp needed. Also use the postcard for additional information on any product advertised in this issue.

P63. Battery Terminal Puller

A new and different battery terminal puller is now offered by the New Britain Machine Co., New Britain, Conn., which should prove of special interest to fleet operators. The manufacturer claims that it is particularly preferred by battery service men because it can be used in very

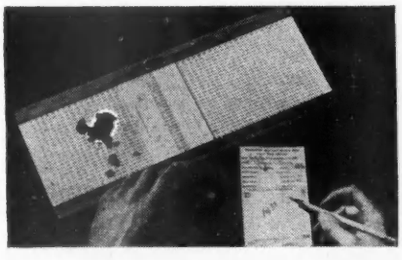


close quarters. The puller is operated by simply squeezing the levers together, and enough power is developed to lift the terminal straight up on the battery post, no matter how badly it is corroded.

Use free postcard for more details

P64. Cost Calculator

Fleet operators can figure payrolls and job costs in a fraction of the usual time

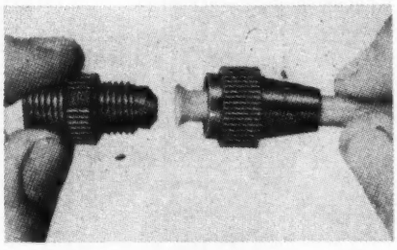


through the use of a new calculator, according to the claims of the manufacturer, the Berger-Bricker Co., Los Angeles, Cal. Operating on a simple new principle, this device includes all hourly rates of pay from $0.50 to $1.75, with a half-cent spread between rates. It covers all time periods up to 104 hours with divisions of one-tenth of an hour. The calculator is made of lacquered wood and easily fits into a desk drawer.

Use free postcard for more details

P65. Plastic Tubing & Fittings

A complete line of plastic fittings and tubing for automotive gas, oil, vacuum and grease lines has been announced by the Imperial Brass Mfg. Co., Chicago, Ill.



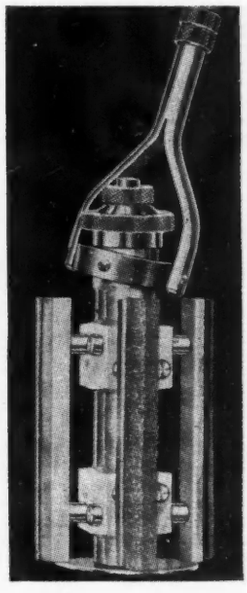
Since brass can no longer be used in the manufacture of these parts, and the stock on hand of brass fittings has been growing shorter in recent months, these new plastic parts should be welcomed by fleet operators who are experiencing difficulty in securing needed replacements.

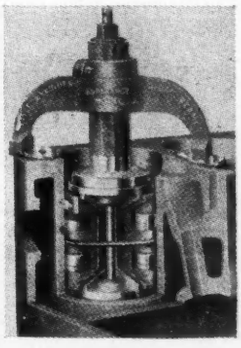
The fittings are of the flare type and can be used with copper, brass, aluminum, steel or plastic tubing, and are offered in the most popular styles and in a complete range of sizes. The plastic tubing is available in sizes from ⅛ in. to ½ in. O.D. and is sold in 25-ft. coils. The manufacturer points out that while substitutes seldom have all the good characteristics of the item replaced, nevertheless plastic fittings have been shown by tests to be practical for use on gas, oil, water and air lines if temperature limitations of heat and cold are observed.

Use free postcard for more details

P66. Cylinder Repair Tools

Two pieces of shop equipment are offered by the Lisle Corp., Clarinda, Iowa, which should prove of interest to fleet operators. One is a new, improved cylinder hone and the other a cylinder ridge reamer. The manufacturer makes the following claims for the hone: That it will cut cylinder honing time by one-quarter; that even hard to get at cylinders under the cowl are easy to reach, and that its longer stones, micrometer adjustment and other features make it more accurate, faster and easier to handle. It is claimed there's not a half-thousandths variation from top to bottom after the honing job is finished. The ridge reamer will handle all size cylinders. Advantages claimed for this reamer are: Adjustable bracket which makes it instantly adaptable to all cylinder blocks; guide rollers which follow cylinder contours, assuring contin-





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CONSERVING WITH CONVERSIONS

Many fleet operators are taking advantage of WPB's Amendment 2 and doubling truck

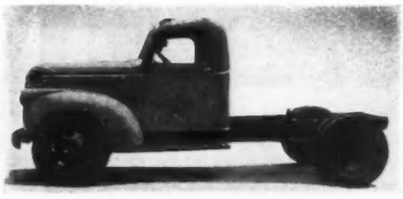
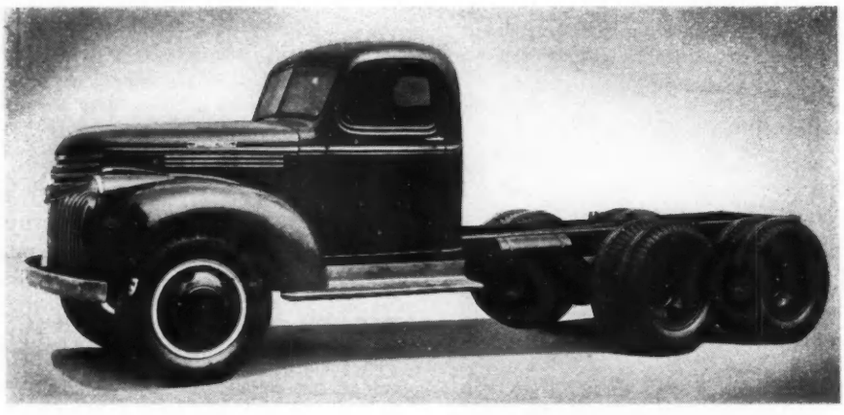


Fig. 1. Standard 1½-ton chassis had capacity doubled by Thornton Tandem third axle conversion at right. Chassis weight before, 3300 to 3700 lb.; after, 5900 to 7400 lb. Tire size before, 6.00x20 to 8.25x20. G.V.W. before, 9500 to 13,500 lb.; after, 23,000 to 31,000. Payload before, 6200 to 9900 lb.; after, 17,100 to 23,100 lb. Other data appears in the article



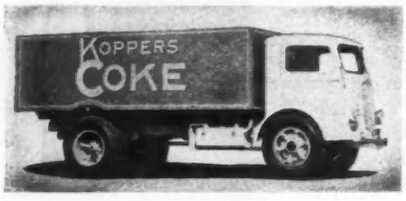


Fig. 2. This job was rated at 30,000 lb. with 162-in. wheelbase, 16 ft. body, 10.00x24 tires. Trucktor conversion, right, brought weight to state's legal limit of 40,000 lb. Wheelbase, 135 in., body 18 ft., same tire size. With a slight increase in tire size, this conversion would readily carry 50,000 lb. gross

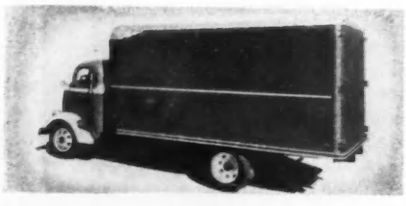
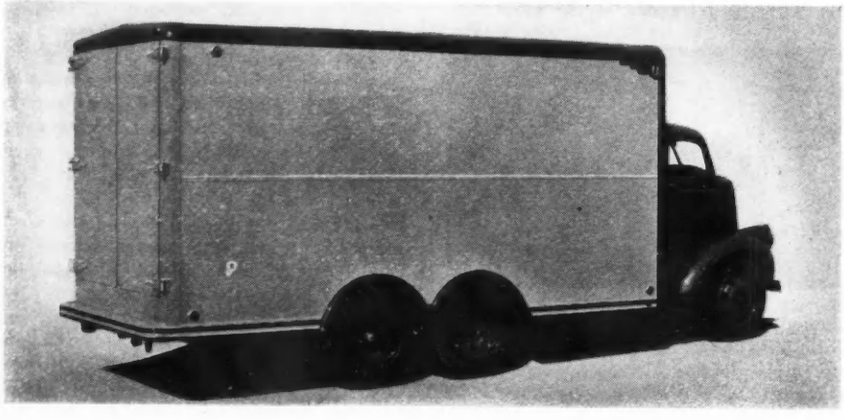


Fig. 3. The c.o.e., all-weather, panel job shown in the above illustration represents another excellent example of what can be accomplished in an effort to acquire greater payload capacities without resorting to appeals to the truck rationing boards. At the right is a "big one made out of a little one". Original capacity of 1½ tons was increased to 6 tons



pay loads with third axles

NUMEROUS fleet operators have found a simple solution to their urgent needs for more trucks of large gross weight and capacity. Stated briefly, it is "make big ones out of little ones."

While the conversion of small or medium vehicles into trucks of larger capacity naturally requires the use of extra tires, wheels, springs and other parts made from vital materials, the Automotive Division of the War Production Board not only approves but actually encourages the rebuilding. Every time a conversion is effected, it keeps a heavy truck in the rationing pool and, thereby, contributes to the national conservation effort.

An increasingly popular method of conversion is the installation of a third axle to support a larger body than in service on the chassis being considered for rebuilding. A good idea of what can be accomplished by third axle conversions can be obtained from Fig. 4. This illustration

(TURN TO PAGE 116. PLEASE)

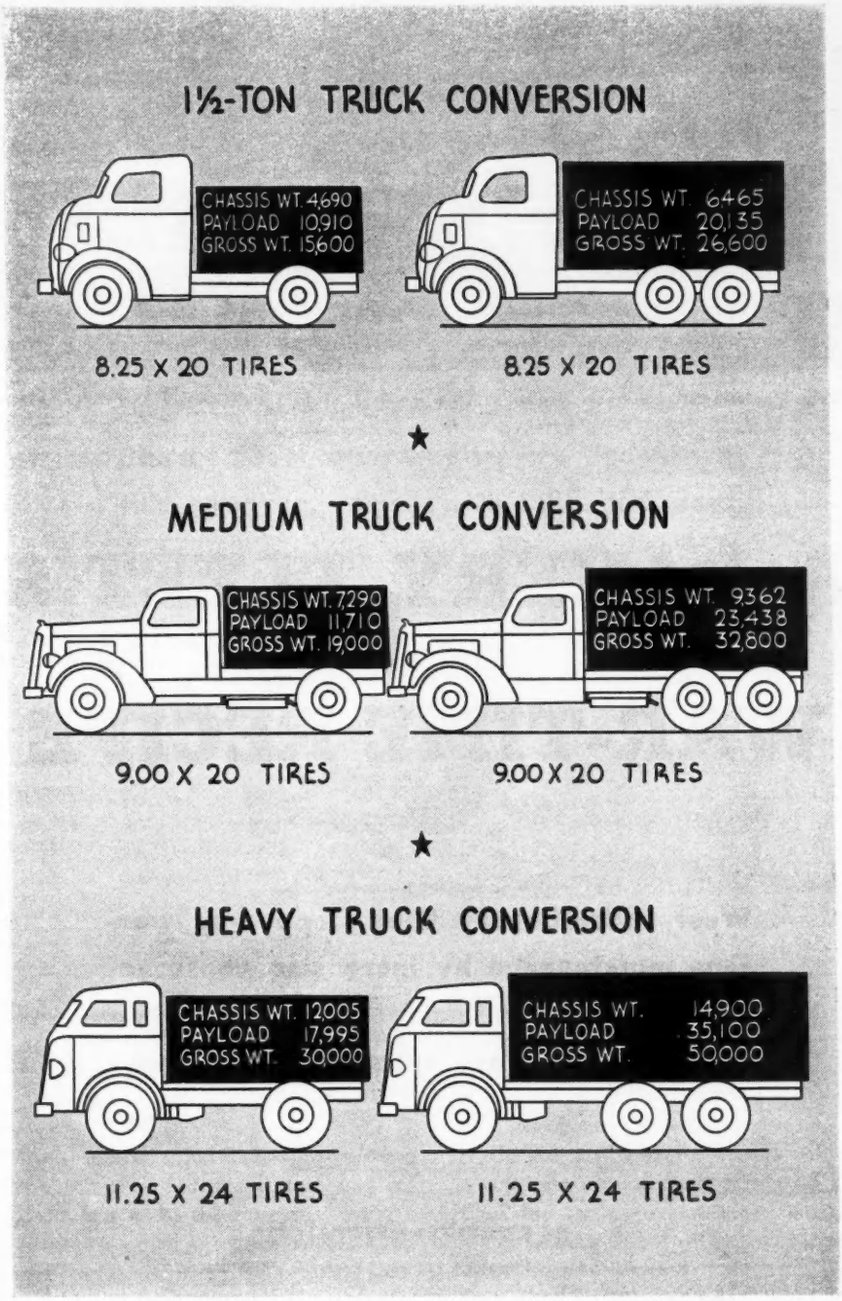
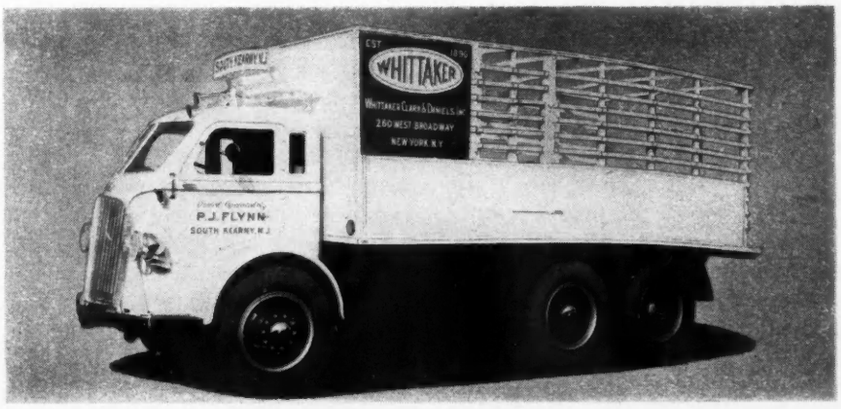


Fig. 4. Data provided for the comparative illustrations above show that, in the majority of cases, one six-wheel truck can haul practically as much payload as two standard four-wheel trucks

Fig. 5. This c.o.e. was rated at 30,000 lb. with a 162-in. wheelbase and 11.00x24 tires. Trucktor conversion, right, brought weight to state's legal limit of 40,000 lb. Wheelbase, after conversion, 128 in., same tire size. With a slight increase in tire size, this conversion would readily carry 50,000 lb. gross weight



These Kilpatrick delivery trucks, typical of 54 in the fleet, operate under an efficient PM program requiring only one mechanic, a greaser and a washer

A BAKERY FLEET'S WAR-TIME RECIPE

West coast bakery fleet stepped-up war-time maintenance by increasing conservation measures to include regular monthly tune-ups and more frequent oil changes

by ALFRED J. SHEPHERD
Fleet Superintendent, Kilpatrick Marvel Baking Co., Oakland, Cal.

Alfred J. Shepherd

MANY fleet operators today are salvaging parts, perhaps rebuilding entire trucks, because they are forced to do so. They can't do much else. Almost every owner or head of a fleet is taking steps today to conserve gasoline, make tires last longer; in general, to utilize every last ounce of vital material—partly from pure patriotism and partly to accommodate his truck operations to today's uncertain conditions.

The owners and operators of the Kilpatrick Marvel Baking Company's truck fleet are not an exception. We are doing things in the way of truck maintenance and operation that we never have done before. We are conserving, economizing, girding ourselves for future operation problems, as we never dreamed of doing a few months ago.

We deliver our bread throughout Alameda and Contra Costa Counties and to the principal cities of San Joaquin County—Stockton, Modesto, Tracy and so on. Our fleet comprises 54 delivery trucks, one transport truck and trailer, one small trailer and two passenger cars. We average a total mileage of 575,000 per year. The delivery trucks average about 200 miles per week each. We have only one repair shop, right here at our headquarters in Oakland, where we do all of our own work except rebore jobs, painting and work of that sort, for which we are not equipped. It would not pay us to maintain the equipment necessary for the amount of work we have in those lines. Our maintenance personnel consists of two men, besides myself, one greaser and one washer.

We have had a preventive maintenance program in effect for about two years. Nevertheless, we frequently have road failures, owing to our extensive mileage and the heavy strain put upon our vehicles. I should say we have from 25 to 30 per year. There were four, for example, during the last six weeks. We handle them by sending out a spare truck, transferring the load for continuance of the injured truck's duties and bringing the damaged one back to the shop.

I believe one of the biggest aids to a satisfactory and effective maintenance program is a plentiful use of good oil. I consider that oil is one of the cheapest things we can buy—much cheaper than the repairing of worn-out engine parts or their replacement with new ones. The main thing is to keep pistons, rings and bearings in good shape. They are running in oil all the time and if

(TURN TO PAGE 122, PLEASE)

6-POINT PLAN ADDS 60% TO TIRES

Dairy fleet operator's tire conservation program copes with long distances, difficult terrain, dry climate, sudden temperature changes and road conditions

C. L. Patrick

by C. L. PATRICK
Sales Manager, Valley Gold Dairies, Albuquerque, N. M.

WHEN the tire shortage began to look serious, in fall of 1941, we immediately took measures to conserve the life of the tires on our 28 vehicles. We believe we are now getting close to maximum mileage out of every tire we use. Our conservation program consisted of the following points:

1. Recapping.
2. Controlling inflation.
3. Holding speeds under 40 m.p.h.
4. Rotating tires on each truck.
5. Putting a mechanic in charge of all tires.

In the spring of 1942 we carried our economy program further by adding another point:

6. Reducing total delivery mileage by 42 per cent.

We have found that we can successfully recap tires an average of three times. We run them 18,000 miles before the first recapping, which gives us an added 16,000 miles. The second recapping gives us approximately 10,000 miles more. The third about half of that. When we were not recapping any tires we used to get around 30,000 miles out of our tires, and then trade them in for new ones.

Recapping has not increased our rate of road failures. In the past three months, for example, we have had only two tires give out on the road. We believe that recapped tires are perfectly safe and dependable with careful driving and proper inflation. We recap tires when there is about a quarter-inch of rubber left on the tread.

We use dual wheels on our three heavy trucks for deliveries out of the city. When recapped tires go on these vehicles they are placed on the front at first. Our mechanic matches the dual tires for mounting, using his judgment as to their relative weight, freshness and resiliency. The matching is checked every 6000 miles.

The mechanic makes an examination of all fleet tires every day on the return of the vehicles from their runs. He rotates the tires by criss-crossing them, from left front to right rear, and from right front to left rear. This is done every other week.

On our long distance trucks, which in all cases do a lot of turning off the highway for stops and in some cases have to run on dirt roads, the front tires have a tendency to cup. This begins to show up between 8000 and 12,000 miles. This is not due to misalignment because we have the alignment checked by specialists at regular intervals. By starting the recapped tires on the front and then following up with criss-cross rota-

Part of Valley Gold fleet. The rough and mountainous terrain over which these vehicles travel presents a difficult problem in tire maintenance

A TREND toward the ultimate in fleet tire conservation is the employment of factory trained experts to provide the best tire maintenance methods, especially as applied to local operating conditions. The objective is, of course, the correction of any tire operating and maintenance faults or the improvement on the basically sound practices now in effect. Fleet operators employing such services are enjoying a profitable and stimulating experience in following the methods outlined by tire experts in checking and servicing tires

The results, in most cases, show immediate improvement in tire mileage; elimination or drastic reduction in destructive operating conditions; appreciable reduction in road failures and a general improvement in the condition of all casings in service or storage.

A study of the methods and technique employed by these tire maintenance experts shows that two major steps govern their procedure.

1. A preliminary survey of operating conditions to uncover such differentials in local operating conditions as conflict with standard tire maintenance practices.

2. Establishment of corrective practices with the view of obtaining maximum tire life and mileage.

Standard practices, as recommended by all the leading tire manufacturers, have been outlined in these pages upon numerous occasions. Last month, for example, two articles were published dealing with maximum tire life. They embraced the various inspection, operation, maintenance and storage conditions, including such associated mechanical conditions as front-end service. A discussion of these points, therefore, will not be

Tire pressure gages are checked periodically with a master gage to assure right inflation

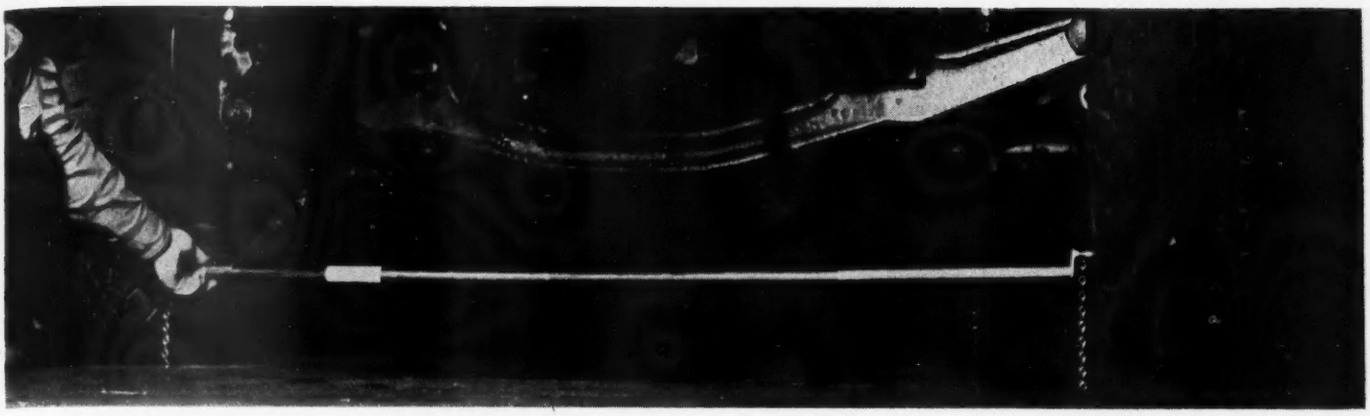
Improper tire and rim combinations affect tire life. Here, check is being made with rim gage

HOW TIRE

Procedure and technique employed by factory-trained,

This tire expert is using a measuring stick for checking the over-all diameters of this dual set, a necessary procedure for proper matching

Here, a center-to-center measurement is being taken to determine dual spacing. Insufficient spacing harms tires and too much strains the axle



A wheel that is only a half-inch out of alignment is literally dragged 87 ft. every mile it rolls. Therefore, frequent use of a good wheel-aligning gage is a "must." In this illustration, the tire expert is positioning the gage for a toe-in check. Gage is being raised so that the chain just touches floor

EXPERTS CHECK TIRES

tire maintenance men in increasing fleet tire mileage under varying local conditions

included at this time. However, a group of illustrations are reproduced on these pages to show the various tools, gages and methods employed by the experts for tire inspections.

The outstanding success of the current expert tire consulting services are based upon the operating differentials that have made it difficult, if not impossible, for fleet operators to adhere to standard tire maintenance practices. The various factors that make up these conditions are termed as the fleet's "personal-

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In this illustration, the tire man is shown using a portable load scale for weighting the load distribution between the front and the rear axles

Frequent checks with a tire tread-depth gage will indicate if rate of wear is normal or excessive. Also permits estimating remaining mileage

Speakers at Safety Champions session, (L. to R.) H. F. Webb, M. C. Goodspeed, Henry Scheffer, E. A. Geoffroy, J. J. Helmkamp, and Richard B. Gossom

SAFETY MEN CONSIDER CONSERVATION

Increasing the life of existing vehicles, replacement and training of personnel and the 35-mile speed limit lead discussions

by **RANDALL R. HOWARD**
Special CCJ Correspondent, Chicago,

W. F. BROWN
New Chairman, Commercial Vehicle Section

WHAT the fleet operators of America can do in a practical way to control accidents, toward the conservation of their vital rolling equipment and essential operating personnel during the present World War emergency, was the central theme of the commercial vehicle sessions of the Thirty-first National Safety Congress, held from Oct. 27 to 29 in Chicago, and attended by several hundred operators and representatives from coast to coast.

The general slogan of the giant Safety Congress, with 175 sessions representing many different industries, was "Save Manpower for Warpower". The theme of the commercial vehicle sessions was well stated at the first of its seven sessions by the opening remarks of General Chairman J. W. Lord, Safety Engineer of The Atlantic Refining Company, Philadelphia.

"We must 'keep 'em rolling,'" he said, "and to accomplish this we have two things especially to worry about. First, the replacement of our vehicles and parts, and what to do for their best conservation. Second, the increasing losses of our drivers and mechanics, and how best to select and train new ones."

The group interest in these two problems by the attending safety delegates was well proved during the several high-light spots of the convention which developed. Probably the most dramatic of these spots came during the very last session—just after W. J. Cumming had delivered his featured talk on preventive maintenance. It was then that H. H. Kelly asked for a show of hands as to how many different trucking fleets were represented by delegates in the audience. About 25 hands were raised. But in answer to his next question—"How many of these fleets are now carrying the 'decal' pledge sticker?"—only ten hands were raised!

Another convention high-light was the lively discussion during sessions and between sessions by delegates as to the safety advantages, or disadvantages, of the new government

Other headliners (L. to R.), Donald Goodwillie, Amos Neyhart, W. F. Brown and Herbert Hodge

regulation of 35 miles per hour as the maximum speed for all motor vehicles. It seemed rather generally agreed in these discussions that passenger cars on highways were observing the speed-reduction order much more consistently than were trucks and buses. There were some who frankly argued that the monotony of driving at 35 miles tended toward accidents, and also meant excessive wear to brakes and transmission gears. Moreover, some of these arguments were by fleet safety directors and individual winners featured in recent fleet safety contests.

H. H. Kelly, chief, Allocations Section, ODT, was featured in the opening session in a talk on "Safety Through Conservation of Men and Vehicles." He defined conservation, when applied to motor vehicles, as relating chiefly to the preservation of their safety and their soundness. As to the possible future effects in highway safety from the present national program in the conservation of motor vehicle equipment, he assumed favorable safety results from the maintenance activities of the U. S. Truck Conservation Corps; from the improving public consciousness as to the need of conserving motor vehicle equipment; from the national tire conservation program; from the general reductions in motor vehicle traffic; and from the new 35-mile speed limit.

As unfavorable safety factors, he listed, increased driving recklessness from the public war frenzy; indifference in some circles to traffic hazards; the large reductions in numbers of trained drivers; the steady deterioration through use in the national stock of motor vehicle equipment; and the decrease in numbers of trained operating and supervising personnel.

It was his opinion, as a written summary, that "The trend of passenger car accidents will continue downward during the war period and may well reach a point far lower than we would have thought possible, due to powerful influence of light traffic and low speed. There is less certainty, however, about the trend in bus and truck accidents, with the danger of catastrophic occurrences ever present; and there can be no let-up in the effort of operators, drivers and mechanics to see that their vehicles go out and return safely, all through the war. It will be a hard period for safety men; one that will test their knowledge, strength and determination. But they will have the satisfaction of knowing that in keeping drivers and vehicles fit, safe and free from accidents, they are contributing to the winning of the war."

Director John L. Rogers of the ODT, Division of Motor Transport, was featured at the only luncheon session of the section.

In his supplementary prepared paper, Director Rogers also gave special attention to the problem of selecting and training the additional new drivers that are being required by the industry. This selection, he pointed out, is bringing added safety problems not ordinarily met in peace times, since most of the available new candidates will be either younger men or older men. And tests show that driving skill is more outstanding in the young, and falls off with age. Hence, he advised, these two factors must be recognized and compensated for through the exercise of greater care in the initial selection and the safety training of new drivers.

W. J. Cumming, Chief Vehicle Maintenance Section, Division of Motor Transport, ODT, followed at another section with a supplementary talk, which was quite technical in spots, on "Preventive Maintenance Program Keyed to War Conditions."

The question was asked as to the availability, during the present period, of personnel that could be trained. In reply, Mr. Cumming stated the opinion that there are many competent older men now retired or in other work, "and only awaiting the invitation to get into vital war work." He also believes that women can be trained to do much effective motor vehicle work and there is still a large reservoir of labor among colored people. He thinks also that younger boys can do a great deal of effective shop work. This latter point was seconded by others; one fleet operator stating that the average boy of 16 can do a good job in lubricating an automobile, and soon can learn to lubricate a truck. Students from classes in technical high schools, taking a three or four-year voctional or mechanical course, were suggested as another labor source. Colored women workers were reported doing good work on loading docks; other women as drivers of light trucks, efficient also in changing tires and correcting minor mechanical troubles.

H. D. Scheffer, Safety Director of Auto Owners Insurance Company, was chairman of a follow-up session the next day on this general topic. It was a session of Safety Champions, and individual winners or fleet spokesmen were invited to tell frankly about their winning safety methods.

M. C. Goodspeed spoke as Fleet Safety Director for the General Electric Company of Erie, Pa., with first-place award among small fleets in

(Turn to Page 140, Please)

O D T NEWS

Tires Must Be Inspected by Jan. 15

Postponement of the Certificates of War Necessity deadline from Nov. 15 to Dec. 1 does not change the period in which the tires of all commercial motor vehicles must be inspected, ODT officials emphasized.

These inspections may be made any time after Nov. 15 and must be completed before Jan. 15. Following the initial inspection, the tires of every truck, bus, taxicab or other commercial motor vehicle must be taken in for inspection every 5000 miles or 60 days, whichever is completed first.

After such inspection, no commercial motor vehicle will be permitted to operate unless the official tire inspector has certified that all possible and necessary repairs, replacements or adjustments to assure maximum conservation of tires have been made.

Laid-up Trucks Need No Certificates

Certificates of War Necessity will not be required for vehicles "laid up" indefinitely until they are placed back in operation, the Office of Defense Transportation explained. This is because the Certificates are issued for the operation of each vehicle, and not for the vehicle itself.

The ODT drew a distinction between vehicles in "dead storage" and those used as stand-by equipment. Those in dead storage, such as a farmer's truck which will not be placed into use until Spring, or a taxicab out of service because of a curtailment order, need not have Certificates now. Stand-by equipment, which is currently available to be pressed into service whenever needed, however, should have Certificates of War Necessity by the Dec. 1 deadline.

Vehicles Exempted as to Certificates

Passenger automobiles which are leased or rented for periods of more than seven consecutive days will not be required to carry Certificates of War Necessity, the Office of Defense Transportation announced today.

Such vehicles were exempted from General Order ODT No. 21 in an exemption order issued Nov. 12, but must qualify for gasoline under the OPA mileage rationing program for passenger cars in order to operate.

Under the exemption order, lessees will not be required to obtain Certificates for any vehicles hired, and lessors will be required to obtain Certificates only for vehicles leased or rented for seven consecutive days or less.

Also exempted from the Certificate of War Necessity order were certain other vehicles including vehicles operated from one place of storage to another, vehicles used in testing tires, fuels or equipment by governmental agencies or by tire manufacturers for testing tires, vehicles operated in the course of manufacture and testing and vehicles operated to a place of storage following repossession or upon seizure by governmental authorities.

Private Carriers and Joint Action Plans

Private motor carriers engaged in "over-the-road" service are now permitted to put joint action plans into effect without first securing approval of the Office of Defense Transportation. In order that ODT be kept informed, carriers who put joint action plans into effect without prior submission must file a copy of their plan with the ODT Motor Transport Division in Washington, D. C. This move to facilitate establishment of joint action plans is contained in Amendment 2 to Order No. 17.

Motor carriers who have doubts as to the lawfulness of their plans under Federal Anti-trust laws, may, if they desire, still submit plans to the ODT for approval and clearance by the Department of Justice.

This same procedure for joint action plans is currently in effect for carriers engaged wholly in local delivery service. Carriers other than local delivery or private over-the-road carriers must still obtain a formal order from the ODT to put joint action plans into effect.

Laundry Delivery Interpretation

A laundry truck may not make a delivery of clean clothes in the morning and pick up soiled clothing in the afternoon of the same day at the same place, under the restriction on more than one delivery per day between one point of origin and one point of destination, as that section of Order No. 17 has been interpreted by ODT Counsel Scott.

Florist Deliveries Relaxed

Restrictions on number of deliveries permitted in one calendar day, contained in ODT Order No. 17, have been relaxed to allow florists to make three deliveries of flowers to a funeral home and two deliveries to a funeral in a private home, provided such operations are in local delivery service. Furthermore, one additional call to one point on the same day may be made for the purpose of removing wedding decorations. These provisions are included in General Permit ODT 17-17, effective Nov. 16 until further notice.

23 Joint Information Offices

Twenty-three Joint Information Offices had been established up to Nov. 20 in various parts of the country to assist motor truck carriers in complying with conservation measures of the Office of Defense Transportation, and a number of other plans submitted by carriers pursuant to General Order ODT No. 13 are being reviewed by the ODT and the U. S. Department of Justice.

Offices have been established at Baltimore, Md.; Detroit, Mich.; Kansas City, Mo.; Buffalo, N. Y.; Providence, R. I.; Charlotte, N. C.; South Bend, Ind.; Houston, Tex.; San Antonio, Tex.; Columbus, Ohio; Wausau, Wis.; Phoenix, Ariz.; Cincinnati, Ohio; Chicago, Ill.; Rockford, Ill.; Des Moines, Iowa; Washington, D. C.; Louisville, Ky.; Spokane, Wash.; Greeley, Colo.; Canton, Ohio; Mansfield, Ohio, and Cleveland, Ohio.

Six More District Managers Named

All of the 142 district managers have been appointed by the ODT's Division of Motor Transport. Previous announcements in Council bulletins have covered 133 of those established (see Bulletins Nos. 107 and 115). Following are the six district managers who complete the list:

ALBUQUERQUE, N. M.—Julius E. Eaves, 324 Rosenwald Bldg. (P. O. Box 324).
AUSTIN, TEX.—Lon L. Nusom, 418 Scarbrough Bldg. (P. O. Box 791).
SAN ANGELO, TEX.—John W. Reed, 805 San Angelo Natl. Bank Bldg. (P. O. Box 730).
TULSA, OKLA.—Bennett N. Bond, Petroleum Bldg. (P. O. Box 1137).
WACO, TEX.—Ray Martin, 218 Professional Bldg. (P. O. Box 53).
WASHINGTON, D. C.—C. H. Rauschenberg, Temporary Bldg. "2", 1901 D Street, N. W.

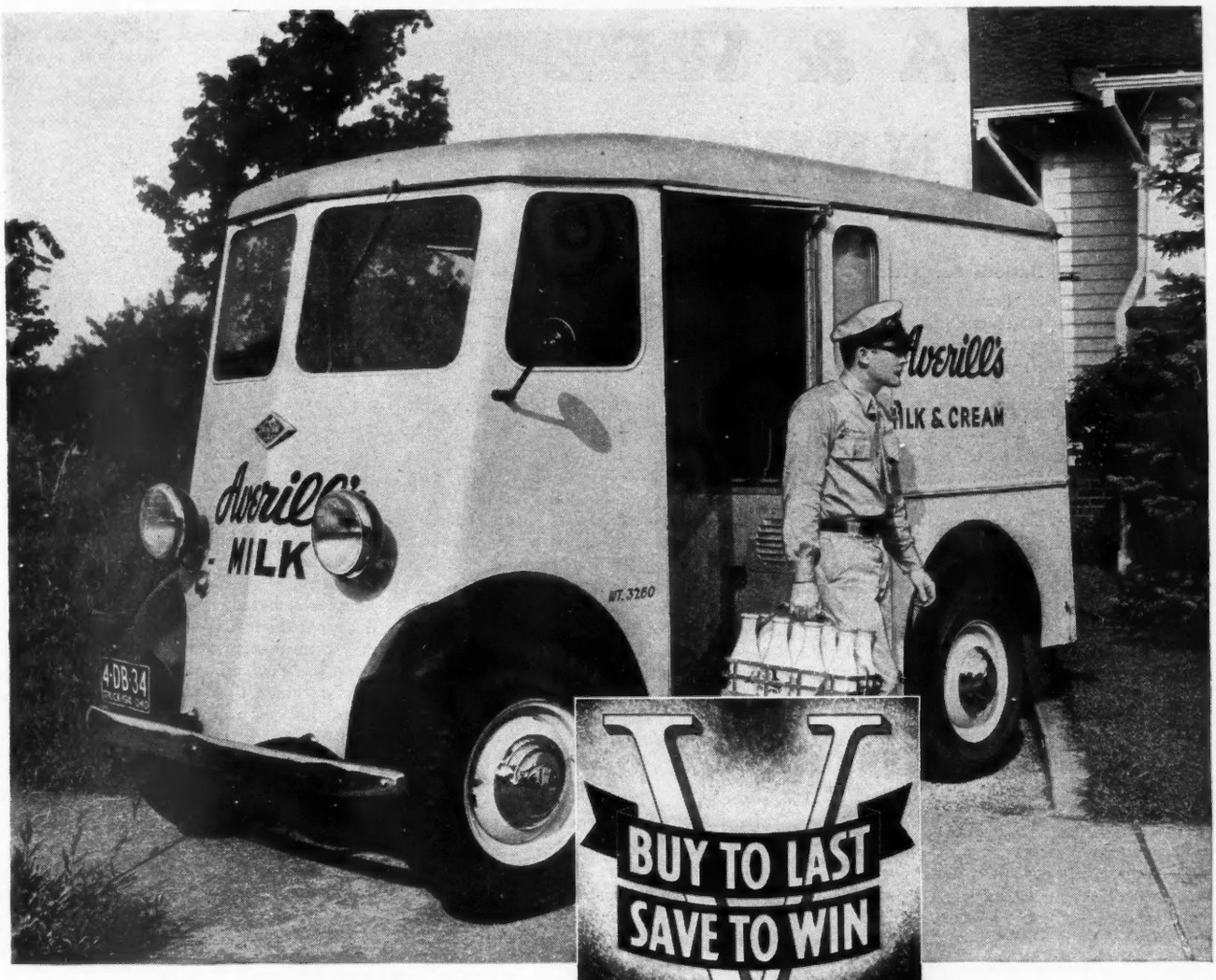
Certificates for Converted Cars

Owners of passenger cars are not eligible for Certificates of War Necessity unless "the vehicle has undergone a genuine structural change, reasonably permanent in nature, which makes it likely that property, rather than passengers, will be carried," the Office of Defense Transportation said.

Moreover, the owner must establish the fact that his business or occupation requires the use of a property-carrying vehicle, rather than a passenger-carrying one, in order to qualify fully for a Certificate.

Special Equipment Defined as "Parts"

Hoists, cranes, winches, tanks, bodies, etc., are considered as "parts" which, after Nov. 15, cannot be purchased, installed or mounted on a commercial motor vehicle which does not carry a Certificate of War Necessity, according to an interpretation issued by ODT Counsel. The Order is equally binding upon the person who "transfers, mounts, installs or delivers" the part, and requires him to see that the purchaser of the part presents a valid Certificate for the vehicle for which the part is intended.



One of Averill's modern 64-truck fleet, Exide users for 20 years, and still using these dependable batteries.

The Averill Dairy Company started this policy 20 years ago

Exide
EXTRA DUTY BATTERIES

Buy to last and save to win means Exide to this active Akron dairy. They first purchased Exide Batteries about 20 years ago, and today, most of their 64-truck fleet is Exide-equipped. That's a record you'll find repeated in commercial transportation all over America. The sturdiness, long-life, easy maintenance, and high performance of Exide Batteries is helping to Keep America Rolling.

Join the U.S. TRUCK CONSERVATION CORPS

THE ELECTRIC STORAGE BATTERY CO., Philadelphia
The World's Largest Manufacturers of Storage Batteries for Every Purpose
Exide Batteries of Canada, Limited, Toronto

OPA & WPB NEWS

Temporary Gas Rations for Trucks

A provision for granting temporary transport rations to trucks, buses, taxis and other commercial vehicles for which Office of Defense Transportation Certificates of War Necessity have not been issued was announced Nov. 23 by OPA.

The provision is included in Amendment No. 1 to the new nation-wide gasoline rationing regulations and was effective November 21.

Beginning Nov. 23 commercial vehicle operators who have applied to the Office of Defense Transportation for, but have not received, Certificates of War Necessity may apply at their local War Price and Rationing Boards for temporary transport rations to be valid beginning Dec. 1. Applicants may receive T rations, on this temporary basis, for the amount of gasoline they estimate they will require through Dec. 31.

Any gallonage provided through a temporary ration will later be deducted from the gallonage allowed by the ODT on the Certificate.

Through an agreement with OPA and ODT temporary transport rations also will be granted to operators of commercial motor vehicles whose Certificates of War Necessity contain clerical or other errors obvious on the face of the certificate.

The ODT has announced that the holder of a temporary ration or any holder of an ODT certificate who is dissatisfied with the amount of gasoline that has been allowed him may apply to his ODT district office for a revised certificate.

Fleets May Have Own Tire Inspectors

Service or maintenance employees of truck and bus fleet owners who qualify as competent tire men may be appointed as official inspectors by OPA. As such, they may inspect the tires on the vehicles in their employers' fleets and fill out the necessary inspection forms. Persons wishing to become inspectors should apply to their local War Price and Rationing Boards for appointment.

Inspectors need not be in the tire business, but should be men familiar with tire maintenance and repair so that they can tell, by examining the outside of a tire, whether some mechanical fault of the vehicle on which it is operated is causing undue wear.

OPA Tire Ruling Hits Fleets

The OPA has ruled that a fleet operation which uses "passenger type" tires on its commercial vehicles as well as on passenger cars—even if only one passenger car is operated—is required to turn in all tires in excess of five for each vehicle before gasoline can be obtained for the passenger car.

Gas Coupons Must Be Identified

Vehicle owners holding gasoline books must have identifications written in ink on the back of their coupons for any gasoline purchases they make, the OPA ordered.

The identification to be written in ink on the reverse side of the coupon shall consist of the license number and state of registration in the case of A, B, C, D, S-1, and S-2 coupons. In the case of coupons in interchangeable books issued for fleet vehicles the information may be either written in ink or stamped in ink, and must consist of the name of the state and city or town where the home office of the fleet operator is located, and the name of the company, or other fleet designation appearing on the vehicle. The non-highway "E" and "R" coupons, and all bulk coupons, must carry the name and address of the person to whom the ration was issued.

Trailers May Be Stored Out Doors

Standards of maintenance established by the Office of Price Administration for the care of new commercial motor vehicles were modified by the Office of Price Administration to permit outdoor storage of trailers. Approximately 7000 trailers, full and semi-trailers are affected. Household and passenger trailers are not included.

However, trailers stored indoors may be sold at higher prices than those stored outdoors.

WPB Limitation Order Amendments

WPB Amendment No. 2 to Supplementary Limitation Order L-1-g redefines the class of truck trailers prohibited by deleting from the definition in the original order the phrase, "having a load-carrying capacity of 10,000 pounds or more." The effect of this omission is to prohibit the manufacture of truck trailers of all sizes.

Amendment No. 1 to Supplementary Limitation Order L-1-h extends the time, within which the 4000 heavy trucks may be produced, to March 31, 1943. It does not increase the number of heavy trucks authorized for manufacture.

Specialists to Help Keep 'Em Rolling

More than 50 automobile specialists are being added to the regional and district offices of WPB to act as liaison between the WPB and the automotive industry. The automotive field men will enable automobile manufacturers, parts makers, garages, dealers and others whose business is served by the Automotive Branch to transact business without coming to Washington. The field men will also be a clearing house for informaion both to and form industry and WPB. They will work to maintain frozen vehicles in proper condition, will cooperate with manufacturers in seeing that sufficient parts are provided to keep essential automobiles on the road, will expedite delivery of supplies, and investigate inventories.

Jeffers Not Optimistic About Tires

Published reports that the nation's rubber problem has been licked and that tires for all will be available by Nov. 15 were branded as erroneous and misleading by Rubber Director William M. Jeffers.

"We will have tires for everybody when we have the tires," Mr. Jeffers said, "and not before. There has been no change in the basic situation and I foresee none."

Goodrich Tests Synthetic Tires

According to Dr. Howard E. Fritz, director of research of the B. F. Goodrich Co., experimental development work done with samples of butadiene-type synthetic rubber, the type which makes up the great bulk of the government synthetics program, has already shown up much that is good and several things that are still unsatisfactory about this new rubber. Passenger tires and small-size truck tires give excellent service. On large-size truck and bus tires several difficult problems arise due to the fact that synthetic rubber while running generates more heat than natural rubber, and may fail from that cause in spite of its higher heat resistance. Goodrich is at work on this problem and confident it can be solved.

Small Decline In Registrations

The National Automobile Dealers Association declared in a recent report that truck registrations in 34 reporting states declined only 4.5 per cent between Oct. 1, 1941, and Oct. 1, 1942, dropping from 3,030,838 to 2,893,994, a decline of 136,844 units. On a national basis, this indicates a loss of about 200,000 units.

G.M.C. Outlet Expands Line

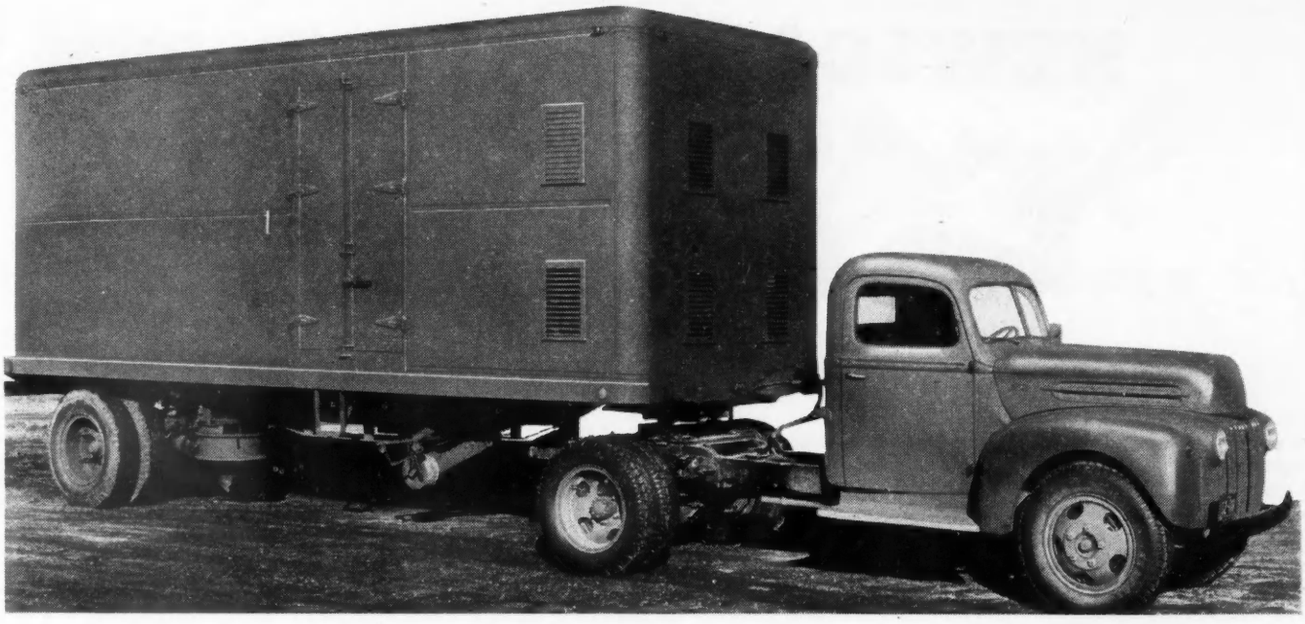
The G.M.C. Truck Division of Motor Power Equipment, St. Paul, Minn., has formed a new corporation to be known as the General Truck & Equipment Co. It will operate as wholesale and retail distributor of General Motors trucks, Wayne bodies, Anthony dump bodies and hoists, and other special truck and trailer equipment.

Distributor Rebuilding Service

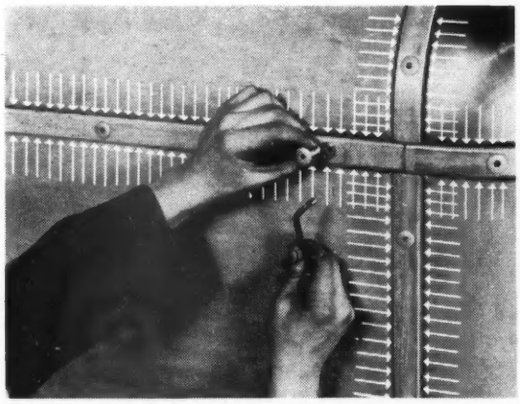
In accordance with the government program to conserve materials and keep vehicles on the road, C. E. Niehoff & Co., Chicago, Ill., offers a complete reconditioning service of distributors for all makes of V8 Fords.

Bucyrus-Erie Wins Army-Navy "E"

The Bucyrus-Erie Co., Milwaukee, was accorded the joint Army-Navy "E" Production Award for outstanding production records.



There are *6 Vital Advantages* in the Lindsay Structure Method of Building Combat Bodies



HOW STRONG IS LINDSAY STRUCTURE?

A thin sheet of 24 ga. steel (.0239" thick), 36" wide—when held under the uniform tension of Lindsay Structure Assembly—IS STRONGER THAN A STEEL BAR 1" in diameter.

1 SPEED OF PRODUCTION

No trimming . . . no fitting . . . no welding . . . NO PRODUCTION BOTTLENECK. Lindsay Structure assemblies are put together by unskilled workers—men or women.

2 UNIFORMITY

Parts for Lindsay Structure are die-rolled, die-drawn, and die-cut. Combat bodies assembled in Florida would be identical in all dimensions to those of the same design assembled in Washington State.

3 EASE OF REPAIR

Replacements for any part of a Lindsay Structure combat body may easily be made in the field. Uniformity of parts assures quick and easy repairs on any unit of corresponding design.

4 ABILITY TO WITHSTAND ANY CLIMATE

All-steel construction is proof against devastating effects of desert heat and tropical humidity. Amazing strength for rigorous wartime service!

5 COMPACTNESS—CAN BE SHIPPED K/D TO SAVE PRECIOUS CARGO SPACE

Ease of assembly makes knocked-down shipment practical. Hence, more Lindsay Structure Combat Bodies can be shipped.

6 LINDSAY STRUCTURE SAVES STEEL

Light sheet and panel construction—has the strength of heavy steel. For information write Lindsay Structure Division, Dry-Zero Corporation, 222 North Bank Drive, Chicago, Ill.; or 60 E. 42nd St., New York, N.Y.

LINDSAY STRUCTURE

REG. U. S. PAT. OFF.

U. S. Patents 2017629, 2263510, 2263511
U. S. and Foreign Patents Pending

LINDSAY STRUCTURE CAN SAVE THOUSANDS OF TONS OF STEEL PER MONTH

NEWSCAST

Post-War Transportation Agency Urged

Post-war establishment of "A National Transportation Agency" under legislative direction to coordinate Federal transportation activities and absorb "existing development agencies" as divisions of the new authority, is among major recommendations of a National Resources Planning Board report transmitted to Congress by the President, Nov. 5.

The National Transportation Agency would "undertake leadership in programs for transport *consolidation*, terminal unification and reconstruction, coordination of the various transport media, and encouragement of the development of new forms of transport within their respective economic spheres." Cooperation of regulatory agencies is called for "but the National Transportation Agency would be responsible for the unification of the Federal Government's planning, development, and administrative functions in the field of transportation."

The report recommends unified terminal facilities to serve coordinated systems as "a logical public responsibility." Among other recommendations are:

1. Planning by the highway transportation industry, the Federal and state governments for *redesign of automotive equipment* along functional lines and modern *inter-regional highways* and *urban express roads.*

2. Immediate authority for the Federal Government to acquire and finance land acquisitions at the request of state and local governments.

3. Continuing evaluation of the economic results of regulatory practices including changes in rate levels, quality of service and competition.

1942 Trailmobile Winner Announced

Consolidated Freightways, Portland, Ore., for the second time, won the Trailmobile Safety Trophy Award, it was announced by David R. Calhoun, president of Trailmobile.

During the 1942 contest year, Consolidated Freightways travelled over 15 million miles with the highest safety record, and received over 2600 acknowledgments of service rendered motorists on the road.

Hale-Halsell of McAlester, Okla., won the Honorable Mention Plaque with the next highest record. Hale-Halsell drivers travelled over two and a half million miles without a single liability accident during the contest period.

Banigan Resigns From ODT

Leon F. Banigan resigned as associate chief, Section of Allocations, Motor Transport Division, ODT, effective Nov. 15 to return to his post as managing director of the National Council of Private Motor Truck Owners, Inc. Matthew E. Kane, who has been senior allocations officer, is now associate chief. Mr. Kane formerly was executive head of the fleet division of Ford Motor Co. in New York City.

Associated Elects Two Vice-Pres.

Associated Transport, Inc., announces the election of two resident vice-presidents. R. W. Barnwell will be in charge of the southern division, and J. J. McCarthy in charge of the northern division.

Timken Names New Field Men

Appointment of Guy Fiber and L. E. Detrick, as field representatives, has been announced by the Timken-Detroit Axle Co. Their duties will be to work with operators of motor vehicles, their mechanics and drivers in improving maintenance practices and driving habits.

Leach Gets New Appointment

Frank W. Leach, of the Dallas district of The Texas Co., has been placed in charge of the trucking industry branch of the national sales division of the company.

Husted Titeflex President

The board of directors of the Titeflex Metal Hose Co. elected Elbert E. Husted president. He succeeds C. W. Fletcher, deceased.

Toledo Appoints Reeves & Adams

Leonard W. Reeves has been appointed vice-president and general manager of the manufacturing division of the Toledo Steel Products Co., Toledo, Ohio. J. E. Adams, general manager of the merchandising division, has been made a vice-president.

Former Harvester Executive Dies

J. F. Jones, former International Harvester executive, died Oct. 23 at Fort Myers, Fla.

Marmon-Herrington Official Dies

John J. Klein, assistant secretary of The Marmon-Herrington Co., died Nov. 11 after a four days' illness from pneumonia.

Robert C. Mathewson has been appointed assistant manager of the Chicago branch office of the American Bosch Corp., Springfield, Mass. He was formerly associated for the past 19 years with the Worthington Pump & Machinery Corp. as assistant chief engineer

Charles Nelson, Jr., has been appointed chief engineer of the Ahlberg Bearing Co. He will be in charge of bearing design and development work. He was formerly on the engineering staff of Marlin - Rockwell Corp., before he joined Ahlberg in 1931.

Bruce Gregory, formerly in charge of sales of the Thornton Tandem Co., Detroit, has been made vice-president in charge of sales and a member of the board of directors. Mr. Gregory was formerly associated with General Tire for nine years

T. B. Johnson, of Marshall Field & Co. receives from John L. Rogers, Director of the Division of Motor Transportation, Office of Defense Transportation, the plaque awarded by the National Safety Council for a new record low in accident frequency rates for large retail fleets. J. W. Lord, 1942 general chairman of the Commercial Vehicle Section of the Council, looks on

H. W. Stone, president of the York-Hoover Body Corp., York, Pa., holding the Army-Navy "E" award pennant which was presented to the company for excellent work in quality and quantity production of Signal Corps truck bodies. The ceremonies coincided with the fiftieth anniversary which the company is celebrating this year

A Bottleneck

LOOKING FOR A PLACE TO HAPPEN

Ask your distributor about the

MIDLAND

Brake Surety Plan

and

MIDLAND

Power Brake Kits

UNLESS your brake equipment is in dependable condition for all emergencies—you risk a bottleneck in some manufacturer's production. The freight must get there safely and on time—precious fighting time when every minute counts.

Ask any driver about how much he has to depend upon his brakes, *not* in stopping, but in "tooling" a heavy load over mean stretches in wintry weather.

This is no time and there's no need to risk upset delivery schedules when MIDLAND brake equipment is available now.

The Midland organization is ready to help you with service, parts, and information. Write your nearest distributor or direct to:

THE MIDLAND STEEL PRODUCTS COMPANY
GENERAL OFFICES: CLEVELAND, OHIO
EXPORT DEPARTMENT: 38 PEARL STREET, NEW YORK, N. Y.

MIDLAND
(CHRISTENSEN)
POWER BRAKES

Joseph B. Eastman, Director of the Office of Defense Transportation, addressing a Mack Conservation Meeting in Washington, D. C.

MACK TACKLES TRUCK CONSERVATION IN A NEW WAY

BRIGHT spot in America's truck conservation program is the remarkable success of Mack Truck Rallies, already held in 45 cities throughout the nation. At these gatherings, attended by drivers, owners and mechanics, as many as 3000 men at one time have raised their right hands and repeated in unison the oath of the U. S. Truck Conservation Corps.

Overflow meetings at Mack branches are heartening evidence that America's drivers and mechanics are eager for information on how to help the war effort by making trucks and parts last longer. Officials of O. D. T., including Joseph B. Eastman, have recognized the great value of these gatherings by personally addressing them.

How to keep America's vital trucks rolling till Victory is won! That's the big problem facing everyone connected with motor trucks. And that's the central theme of Mack Conservation Rallies. No sales talks! No pep talks! Just plain, down-to-earth facts on how truck life *can* be increased. Mack transportation engineers impress on their listeners that present trucks simply cannot be replaced, *must* be made to last for the duration. Stress is laid on the great responsibility of drivers and mechanics to give special maintenance attention to their equipment. Experts review the entire driving operation pointing out how the driver can test during his run to detect minor troubles before they develop into serious breakdowns. Displays of actual parts ruined by neglect and carelessness serve as a forcible reminder of the practical way in which drivers and mechanics can help the war effort by conserving critical materials and lengthening the life of irreplaceable parts.

Hundreds of truckmen have written in to tell us how much these meetings helped them. Let us give you the date of the next Mack meeting in your vicinity. Two hours now can add months and even years to the life of trucks you now operate.

MACK TRUCKS, INC., LONG ISLAND CITY, N. Y.

Mack
TRUCKS
ONE TON TO FORTY-FIVE TONS
•
BUY U. S. WAR BONDS

TRUCK SPECIFICATIONS TABLE

OF STANDARD DOMESTIC MODELS

TABULATED BY COMMERCIAL CAR JOURNAL

and brought up to date in this issue from data supplied by manufacturers

KEY TO DEFINITIONS, ABBREVIATIONS AND REFERENCES

DEFINITIONS

MAKE AND MODEL
Only Domestic Truck Models are listed.

OPTIONAL UNITS
For the express purpose of best fitting the truck to the individual job most of the models listed can be provided with optional engines, transmissions, axles, etc., and these models when so equipped are considered standard stock models.

CHASSIS LIST PRICE
The chassis list price applies to the minimum standard wheelbase with standard tires and standard equipment. All prices are F.O.B. factory. Chassis list price does not include the price of the Cab unless otherwise noted.

RECOMMENDED GROSS VEHICLE WEIGHT FOR NORMAL SERVICE
The Gross Weights published herewith are those supplied by manufacturers as their Recommended Gross Vehicle Weights for Normal Operating Conditions, and are based upon the Maximum Authorized Tire Size listed. In actual practice the manufacturer may either increase or decrease the gross vehicle weight rating when either favorable or unfavorable operating conditions are involved. Since the proper performance of a motor truck depends upon many factors, including grades, road conditions, etc., the gross weights that a manufacturer is prepared to recommend will vary with particular conditions, and the manufacturer's own standard of safety factors. Specific recommendations, therefore, should be obtained from the manufacturer's representative.

CHASSIS WEIGHT
The chassis weight listed includes the weight of the minimum standard wheelbase chassis, with cowl, with standard tires, with standard equipment, with crankcase and cooling system full, and 5 gallons of fuel in the tank. It does not include the weight of the Cab. This applies to C.O.E. as well as conventional chassis types. Exceptions are noted.

STANDARD TIRE SIZE
The standard tire size listed is that which is included in the Chassis List Price.

MAXIMUM AUTHORIZED TIRE SIZE
The tire size listed in this column is the maximum size recommended by the manufacturer of the chassis for the Gross Vehicle Weight for Normal Operating Conditions. It is furnished at extra cost, if it differs from the standard size. Dual rears are understood; exceptions noted.

MINIMUM STANDARD WHEELBASE
The minimum standard wheelbase is the so-called standard wheelbase on which the Chassis List Price is based.

MAXIMUM STANDARD WHEELBASE
The maximum standard wheelbase is the extreme end of the standard range of wheelbases offered by the chassis maker.

MAXIMUM BRAKE HP.
Maximum Brake Horsepower at Given R.P.M. is actual dynamometer reading without accessories.

GEAR RATIO RANGE
Gear Ratio Range in High—Ratios within the range given are available at no extra cost. Exceptions are noted.

TRACTORS
Unless given the designation (N)—meaning not available as a tractor—all standard models may be assumed to be available as tractors. Exclusively Tractor models are designated (T).

KEY TO REFERENCES

c.f.—Cab Forward design.

c.o.e.—Cab-Over-Engine design.

(C)—Converted Ford or Chevrolet model, identifiable by engine make listed.

(D)—Diesel-engine equipped.

(T)—Designed for tractor use only.

(3) Available—All models available in either conventional or c.o.e. design, oversize power plants, oil engines and six-wheel construction.

(5) Condor—These models available with double drop bus frames.

(6) Federal—245 cu. in. engine and 11" clutch available on Models 16 and 76. 263 cu. in. engine and 11" clutch available on Models 16, 17, 76 and 77. 428 cu. in. engine available on Models 45, 55, 92 and 94. 501 cu. in. and 517 cu. in. engines available on Models 55 and 94. Oversize or two-speed rear axles available on Models 16, 17, 18, 20, 25, 29, 35, 45, 76, 77, 80, 85, 89, 90 and 92. Double reduction rear axles available on Models 20, 25, 29, 35, 45, 80, 85, 89, 90 and 92. Two- or three-speed auxiliary transmissions available on all models. Air brakes available on Models 25, 29, 35, 45, 55, 85, 89, 90, 92 and 94. Diesel engines available in all models except c.o.e. All above at extra cost.

(9) Gramm—Models 31, 41, 46, 56, 71, 76, 86 and 96 both gasoline and diesel available with double drop bus frames of various wheelbases. 221 cu. in. engine available on Model 21. 263 cu. in. engine available on Models 31 and 41. 282 cu. in. engine and 5 speed transmission available on Models 41, 46, and 56. 320 cu. in. engine and 5 speed transmission available on Models 41, 46, 56, and 71. 404 cu. in. engine and larger 5 speed transmission available on Model 86. Oversize two speed and double reduction axles available on Models 21, 31, 41, 46, 56, 71, 76 and 86 both gasoline and diesel. All other equipment furnished at extra cost.

(10) Corbitt—Wheelbases optional—any wheelbase desired furnished at chassis price listed.

(11) International Harvester—Specifications shown represent only the basic standard chassis units and standard chassis ratings in keeping with definitions established by Commercial Car Journal. Optional units not shown such as engines, clutches, transmissions, axles or axle ratios, brakes, wheels and tires, frames or frame reinforcements, optional wheelbases or any other units which make up part of the truck chassis and which International will furnish and approve from the factory as optional equipment can or will change either the ratings, chassis weight shown or performance of the truck as indicated by this list.
Also the company reserves the privileges of assigning special gross vehicle ratings for any chassis providing in the opinion of our engineering department, the type of service justifies the new rating without decreasing the safety factor designed into the truck.
(a)—Available with Eaton Two-Speed Axle designated KS Models.
(b)—Available with IHC double reduction axle and designated KR Model.
(c)—Comparable chassis available with Cummins Diesel engine and designated KD Model.

(16) Sterling—Diesel powered unit of comparable capacity available in addition to gasoline models.

(18) Willys—Advertised list price less Federal tax. Cab Pick-up $575; Panel Delivery $849. Prices, complete with shock absorbers and front and rear bumpers. Standard tires 5.50/16—4 ply; Panel Delivery 6.00/16—4 ply; 6.00/16S—6 ply—optional.

KEY TO ABBREVIATIONS

MAKES—ALL

B—Bendix.
BL—Brown-Lipe.
Bu or Bud—Buda.
Cat—Caterpillar.
Cl or Cla—Clark.
C or Chev—Chevrolet.
Con—Continental.
Col—Columbia.
Cum—Cummins-Diesel.
Det—Detroit Gear.
Eat—Eaton.
Fu—Fuller.
Her—Hercules.
L—Lockheed.
LH—Lockheed front, Wagner "hi-Tork" rear.
LO—Lockheed front, Own rear.
LW—Lockheed front, Wisconsin rear
Lyc—Lycoming.
N.P.—New Process.
O or Ow—Own.
Op or Opt—Optional.
Sal—Salisbury.
Shu—Shuler.
T or Tim—Timken.
TO—Timken front, Own rear.
TW—Timken-Wisconsin.
TWH—Timken Wisconsin Herrington.
WG—Warner Gear.
WH—Wisconsin Herrington.
W-Hes—Waukesha Hesselman.
Wau—Waukesha.
W or Wis—Wisconsin.
WO—Wagner front, Own rear.
Ws—Westinghouse.

BRAKES—SERVICE

Location
2—Two Wheels, rear only.
4—Four Wheels, front and rear.
4r—Four Wheels, rear only.
6—Six Wheels, front and rear.

Type
I—Internal.
X—External

Operation
A—Air.
D—Hydraulic and mechanical.
H—Hydraulic.
M—Mechanical.
V—Vacuum.

BRAKES—HAND

Location
C—Center of double propeller shaft.
2—Rear wheels.
2/4—Two-wheel brakes effective on all four wheels through driveshaft.
4—Four wheels.
6—Six wheels.
J—Jackshaft.
T—Transmission.
F—Driveshaft.
P—Propeller shaft.

Type
D—Tru-Stop disk.
I—Internal.
X—External.
PD—Two drums on rear of power divider.

BRAKE DRUMS

Material
a—Cast alloy iron.
A—American Car Foundry.
c—Cast iron.
C—Centrifuse.
Cl—Copper iron.
Co—Composite
D—Dayton.
E—Ermalite.
F—Furnace iron.
G—Gunite.
N—Nickel iron.
p—Pressed steel.
P—Pressed steel.
s—Cast steel.

(Where a combination of any of the above is used, the first reference mark applies to the front and the second to the rear drums.)

FRAME

Type
I—"I" Beam.
C—Channel.
T—Channel tapered front and rear.
L—Channel reinforced with liner.
B—Channel reinforced with both liner and fishplate.
P—Channel reinforced with plate.
TL—Channel tapered front and rear reinforced with liner.
D—Drop Center
Tf—Tapered front.
X—X-Braced.
S—Deep section channel frame with oak insert.
A—Straight section sidemembers, lined with oak inserts.
Y—Straight section channel sidemembers, lined with full length channel reinforcements, and oak inserts.

GOVERNOR STANDARD

Y—Yes.
N—No.

REAR AXLE

Final Drive and Type
B—Bevel.
C—Chain.
D—Dead.
F—Full-floating.
Hy—Hypoid.
d—Dual range axle.
2—Double Reduction.
S—Spiral bevel.
W—Worm.
½—Semi-floating.
¾—Three-quarter floating.

Gear Ratios
(*) Ratios other than standard at extra cost.
(**) Only one ratio.

Drive and Torque
A—Radius Rods and Torque Arm.
H—Hotchkiss (springs).
R—Radius Rods.
T—Torque Arm.
U—Torque Tube.

WHEELS DRIVEN

2F—Forward unit of Rear Axle Group.
2R—Rear Unit of Rear Axle Group.
4R—Forward and rear units of Rear Axle Group.
4F—Front Axle and Forward unit of Rear Axle Group.
4FR—Front Axle and Rear unit of Rear Axle Group.
6—All wheels.

UNIVERSITY OF MICHIGAN LIBRARIES

Line Number	MAKE AND MODEL	Chassis List Price	WHEELBASE Minimum Standard	WHEELBASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear: Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings: Number, Diameter and Length	Governor Standard	TRANSMISSION: Make and Model	Forward Sp'ds	REAR AXLE: Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range in High	FRONT AXLE: Make and Model	BRAKES SERVICE: Make Location Type Operat'n	Lining Area	Drum Area	Drum Material	Hand Location Type	C-A Dimension (Min. Std. W. B.)	FRAME: Side Rail Dimensions	Type
1	Avail- (3) C-100	1370	Opt	Opt	11500	4000	6.50/20D	7.50/20	Wau BL	6-3 1/2 x 4 1/4	245	5.7	165	73-3000	7-2 5/16 x 10 1/2	N	WG T9	4	Tim 53514H	SF	H	5.4-6.6	Tim 30000H	L4IH	266	388	a	TX	60	10x3x 1/4	T
2	able C-200	1520	Opt	Opt	12600	4200	7.00/20D	7.50/20	Wau BL	6-3 1/2 x 4 1/4	245	5.7	165	73-3000	7-2 5/16 x 10 1/2	N	WG T9	4	Tim 53308H	SF	H	5.14-6.6	Tim 30000H	L4IH	304	477	a	TX	60	10x3x 1/4	T
3	C-250	1600	Opt	Opt	14000	4300	7.00/20D	8.25/20	Wau BL	6-3 1/2 x 4 1/4	245	5.7	165	73-3000	7-2 5/16 x 10 1/2	N	WG T9	4	Tim 53308H	SF	H	5.14-6.6	Tim 31000H	L4IH	300	552	a	TX	60	10x3x 1/4	T
4	C-300	1795	Opt	Opt	16000	4800	7.50/20D	8.25/20	Wau BM	6-3 5/8 x 4 1/2	263	5.7	178	78-3100	7-2 5/16 x 10 1/2	N	WG T9	4	Tim 54411H	SF	H	5.80-6.8	Tim 31000H	L4IH	328	603	a	TX	60	10x3x 1/4	T
5	C-350	1905	Opt	Opt	17000	4900	7.50/20D	9.00/20	Wau BK	6-3 3/4 x 4 1/2	282	5.7	188	85-3200	7-2 5/16 x 10 1/2	N	WG T9A	4	Tim 54411H	SF	H	5.80-6.8	Tim 32502H	L4IH	328	603	a	TX	60	10x3x 1/4	T
6	C-400	2135	Opt	Opt	20000	5400	8.25/20D	9.00/20	Wau BK	6-3 3/4 x 4 1/2	282	5.7	188	85-3200	7-2 5/16 x 10 1/2	N	WG T9A	5	Tim 56410H	SF	R	6.16-7.4	Tim 32502H	L4IH	328	603	a	TX	60	12x3x 1/4	T
7	C-400L	2240	Opt	Opt	20000	5500	8.25/20D	9.00/20	Wau BZ	6-4x4 1/2	320	5.7	210	86-3200	7-2 5/16 x 10 1/2	N	Fu 5A330	4	Tim 56410H	SF	R	6.16-7.4	Tim 32502	L4IH	328	603	a	TX	60	12x3x 1/4	T
8	C-500	2440	Opt	Opt	22000	6100	9.00/20D	9.00/20	Wau BZ	6-4x4 1/2	320	5.7	222	95-2800	7-2 5/16 x 10 1/2	Y	Fu 5A330	5	Tim 58300H	SF	R	5.20-7.8	Tim 33000H	L4IH	370	684	a	TX	60	12x3x 1/4	T
9	C-550	2880	Opt	Opt	23000	6800	9.00/20D	10.00/20	Wau MKR	6-4 1/8 x 4 3/4	381	5.3	270	99-2400	7-2 5/16 x 12 1/2	Y	Fu 5-A-430	5	Tim 58300H	SF	R	5.20-7.8	Tim 35000H	L4IH	370	684	a	TX	60	12x3x 1/4	T
10	C-600	3320	Opt	Opt	26500	7400	10.00/20D	11.00/20	Wau MZR	6-4 1/4 x 4 3/4	404	5.3	290	106-2400	7-2 5/16 x 12 1/2	Y	Fu 5-A-430	5	Tim 65743H	WF	R	6.8-10.25	Tim 35000H	L4IH	459	793	a	TD	60	12x3x 1/4	T
11	C-650	3800	Opt	Opt	26500	8000	10.00/20D	11.00/20	Wau SRLR	6-4 3/8 x 5 1/2	462	5.5	330	112-2300	7-3x13 3/16	Y	Fu 5-A-620	5	Tim 65743H	WF	R	6.8-10.25	Tim 35000H	L4IH	459	793	a	TD	60	12x3x 1/4	T
12	C-700	4175	Opt	Opt	35000	8700	10.00/20D	12.00/20	Wau SRKR	6-4 3/8 x 5 1/2	517	5.5	365	126-2300	7-3x13 3/4	Y	Fu 5-A-620	5	Tim 66728H	WF	R	6.8-10.25	Tim 26452H	L4IH	544	867	a	TD	60	12x3x 1/4	T
13	Bantam	349	75	75	1700	850	4.00/15S	5.00/15	Own	4-2.26x3 1/4	50	7.4	34.1	22-3800	3-2 1/4 x 1.005	N	WG T48E	3	Spl 10	S	H	**-5.25	Spl 10	O4IM	76	104	P	4I	114	8x2 1/4 x .109	....
14	Brockway 78	895	138	164	13000	3965	6.00/20D	32x6	Con 24B	6-3 1/4 x 4 1/2	210	6.0	154	71-3100	4-2 1/4 x 6	N	WG T9	4	Tim 53521H	SF	H	5.66-6.6	Tim 30000H	L4IH	255	402	a	TX	65 1/4	8x3x 1/4	T
15	83	1195	138	176	14000	4100	6.50/20D	7.50/20	Con 25B	6-3 1/2 x 4 5/8	244	6.2	180	80.5-3100	4-2 5/16 x 6 ‡‡	N	WG T9	4	Tim 53521H	SF	H	5.66-6.6	Tim 30000H	L4IH	255	402	a	TX	65 1/4	8x3x 1/4	T
16	88	1290	150	176	15000	4500	6.50/20D	7.50/20	Con 25B	6-3 1/2 x 4 5/8	244	6.2	180	80.5-3100	4-2 5/16 x 6 ‡‡	N	WG T9	4	Tim 53307H	SF	H	6.2 -6.8	Tim 30000H	L4IHV	298	477	a	TX	71 1/4	8x3x 1/4	T
17	92	1560	150	188	16000	4700	7.00/20D	8.25/20	Con 25B	6-3 1/2 x 4 5/8	244	6.2	180	80.5-3100	4-2 5/16 x 6 ‡‡	N	WG T9	4	Tim 54411H	SF	H	5.83-6.8	Tim 31000H	L4IHV	329	580	a	CD	83 1/4	8x3x 1/4	T
18	94	1650	156	188	18500	5050	7.50/20D	8.25/20	Con 25B	6-3 1/2 x 4 5/8	244	6.2	180	80.5-3100	4-2 5/16 x 6 ‡‡	N	BL B341	4	Tim 56411H	SF	H	6.16-7.4	Tim 31000H	L4IHV	370	660	a	CD	83 1/4	8x3x 1/4	T
19	112	1710	150	188	18000	5150	7.00/20D	8.25/20	Con 38B	6-3 3/4 x 4 5/8	290	6.0	217	92-2800	7-2 5/16 x 12 1/4	N	BL B341	4	Tim 54411H	SF	H	5.83-6.8	Tim 31000H	L4IHV	329	580	a	CD	77 1/4	8x3x 1/4	T
20	128	1950	156	188	20000	5550	7.50/20D	8.25/20	Con 38B	6-3 3/4 x 4 5/8	290	6.0	217	92-2800	7-2 5/16 x 12 1/4	N	BL B341	4	Tim 56411H	SF	H	5.71-7.4	Tim 31000H	L4IHV	370	660	a	CD	83 1/4	8x3x 1/4	T
21	130-PS	2525	164	206	20000	6250	34x7D	9.00/20	Con 29-B	8-3 ‡‡ x 4 1/2	288	5.4	192	78-2650	7-2 5/16 x 13	N	Fu 5-A-43	5	Tim 56411H	SF	R	6.16-7.4	Tim 32505H	L4IHV	370	660	a	CD	91 1/4	8x3x 1/4	B
22	146	2690	126	206	20000	6060	8.25/20D	9.00/20	Con 40B	6-4x4 1/2	330	6.0	245	104-2800	7-2 5/16 x 12 1/4	Y	Fu 5A330	5	Tim 56411H	SF	R	5.76-7.4	Tim 32505H	L4IHV	370	660	a	CD	53	8x3x 1/4	T
23	(T) 147	2855	132	164	.....	6000	8.25/20D	9.00/20	Con 40B	6-4x4 1/2	330	6.0	245	104-2800	7-2 5/16 x 12 1/4	Y	Fu 5A33	5	Eat A17-17000	SFd	H	Dual Rge.	Tim 32505H	L4IHV	370	660	a	CD	53	8x3x 1/4	T
24	152	2870	126	206	22000	6350	8.25/20D	9.00/20	Con 41B	6-4 1/8 x 4 5/8	371	5.9	280	100-2500	7-2 5/16 x 13 1/2	Y	Fu 5A43	5	Tim 56411H	SF	R	5.71-6.83	Tim 32505H	L4IHV	370	660	a	CD	53	8x3x 1/4	T
25	(T) 153	3025	132	164	.....	6400	8.25/20D	9.00/20	Con 41B	6-4 1/8 x 4 5/8	371	5.9	280	100-2500	7-2 5/16 x 13 1/2	Y	Fu 5A43	5	Tim 58300H	SF	R	6.14-7.8	Tim 32505H	L4IHV	370	660	a	CD	53	8x3x 1/4	T
26	(T) 154	3050	132	164	.....	6300	8.25/20D	9.00/20	Con 41B	6-4 1/8 x 4 5/8	371	5.9	280	100-2500	7-2 5/16 x 13 1/2	Y	Fu 5A43	5	Eat A17-17000	SFd	H	Dual Rge.	Tim 32505H	L4IHV	370	660	a	CD	53	8x3x 1/4	T
27	(T) 156	3700	132	164	.....	6950	9.00/20D	10.00/20	Con 42B	6-4 1/4 x 4 5/8	405	5.7	305	112-2500	7-2 5/16 x 13 1/2	Y	Fu 5A43	5	Eat A9-20000	SFd	H	Dual Rge.	Tim 32505H	L4IHV	459	768	a	CD	53	8 1/4 x 3x 1/4	T
28	162	3450	121	219	25000	7250	9.00/20D	10.00/20	Con 41B	6-4 1/8 x 4 5/8	371	5.9	280	100-2500	7-2 5/16 x 13 1/2	Y	Fu 5A43	5	Tim 58300H	SF	R	6.14-7.8	Shu 15785B	L4IHV	370	663	a	CD	51	8 1/4 x 3x 1/4	T
29	166	4070	121	219	28000	7800	10.00/20D	11.00/20	Con 42B	6-4 1/4 x 4 5/8	405	5.7	305	112-2500	7-2 5/16 x 13 1/2	Y	Fu 5A43	5	Wis 1337H	2F	R	5.63-8.59	Shu 15785B	L4IHV	459	772	a	CD	51	8 1/4 x 3x 1/4	T
30	170X	3640	153	219	25000	7960	9.00/20D	10.00/22	Con 33B	6-4 1/8 x 4 3/4	381	4.7	276	106-2600	7-2 5/16 x 13 1/4	Y	Fu 5-A-62	5	Tim 72300H	2F	R	5.78-7.35	Shu 15785B	L4IHV	370	663	a	CD	83 1/4	8 1/4 x 3x 1/4	T
31	175X	4290	153	211	30000	8550	9.00/20D	11.00/22	Con 34B	6-4 5/8 x 4 3/4	427	5.4	322	133-2600	7-2 5/16 x 13 1/4	Y	Fu 5-A-62	5	Wis 1337BH	2F	R	5.63-8.59	Shu 15785B	L4IHV	459	772	a	CD	83 1/4	8 1/4 x 3x 3/8	T
32	195X	4230	153	211	28000	8650	10.00/20D	11.00/22	Con 33B	6-4 1/8 x 4 3/4	381	4.7	276	106-2600	7-2 5/16 x 13 1/4	Y	Fu 5-A-62	5	Wis 1337BH	2F	R	5.63-8.59	Shu 15785B	L4IHV	459	772	a	CD	83 1/4	8 1/4 x 3x 3/8	T
33	220X	4930	153	219	34000	9050	11.00/20D	12.00/24	Con 34B	6-4 5/8 x 4 3/4	427	5.4	322	133-2600	7-2 5/16 x 13 1/4	Y	Fu 5-A-62	5	Wis 1757H	2F	R	6.06-8.82	Shu 15795B	L4IHV	536	899	a	CD	83 1/4	8 1/4 x 3x 3/8	T
34	240X	5130	153	219	30000	8590	10.00/20D	11.00/24	Con 35B	6-4 1/2 x 5 1/4	501	5.4	370	144-2400	7-2 5/16 x 13 1/4	Y	Fu 5-A-62	5	Wis 1337BH	2F	R	5.63-7.52	Shu 15785B	L4IHV	459	772	a	CD	83 1/4	8 1/4 x 3x 3/8	T
35	260X	6030	195	219	34000	9720	11.00/22D	12.00/24	Con 35B	6-4 1/2 x 5 1/4	501	5.4	370	144-2400	7-2 5/16 x 13 1/4	Y	Fu MHU	4	Wis 1757H	2F	R	6.06-8.82	Shu 15795B	L4IHV	536	899	a	CD	125 1/4	8 1/4 x 3x 3/8	B
36	260S	6380	195	219	36000	10000	11.00/24D	12.00/24	Con 35B	6-4 1/2 x 5 1/4	501	5.4	370	144-2400	7-2 5/16 x 13 1/4	Y	Fu MHU	4	Wis 1757H	2F	R	6.06-8.82	Shu 15795B	Lw4IDV	600	899	a	CD	125 1/4	8 1/4 x 3x 3/8	B
37	Chevrolet BK	528	115	115	4600	°2235	6.00/16S	15/6S	Own	6-3 1/2 x 3 1/4	216	6.5	174	90-3300	4-2 1/4 x 5 1/8	N	Own	3	Own	Hy	U	** 4.11	Own	O4IH	161	242	a	2I	38 1/4	5 3/4 x 2 1/4 x 1/4	C
38	BJ	▲1127	115	115	5000	°3665	6.00/16S	15/6S	Own	6-3 1/2 x 3 3/4	216	6.5	174	90-3300	4-2 1/4 x 5 1/8	N	Own	3	Own	Hy	U	** 4.55	Own	O4IH	161	242	a	2I	.....	5 3/4 x 2 1/4 x 1/4	C
39	BL	602	125	125	5200	°2400	15/6S	15/6S	Own	6-3 1/2 x 3 3/4	216	6.5	174	90-3300	4-2 1/4 x 5 1/8	N	Own	3	Own	Hy	H	** 4.55	Own	O4IH	161	242	a	2I	48 1/2	5 3/4 x 2 1/4 x 1/4	C
40	BN	▲897	134	134	7700	°3770	7.50/17-8S	7.50/17-8S	Own	6-3 1/2 x 3 3/4	216	6.5	174	90-3300	4-2 1/4 x 5 1/8	N	Own	4	Own	Hy	H	** 4.55	Own	O4IH	195	297	a	2I	.....	7x2 1/4 x 1/8	C
41	MR	668	134	134	7700	°2970	6.00/20S†	7.50/20-8S	Own	6-3 1/2 x 3 3/4	216	6.5	174	90-3300	4-2 1/4 x 5 1/8	N	Own	4	Own	HyF	H	5.43	Own	O4IH	329	478	a	2I	57 3/4	7x2 1/4 x 1/8	C
42	MR	694	134	134	7700	°2975	6.00/20S†	7.50/20-8S	Own	6-3 1/8 x 3 1/2	235	6.6	192	93-3100	4-2 3/4 x 5 1/8	N	Own	4	Own	HyF	H	5.43	Own	O4IH	329	478	a	2I	57 3/4	7x2 1/4 x 1/8	C
43	MR	691	134	134	9500	°3110	6.00/20D	7.50/20-8	Own	6-3 1/2 x 3 3/4	216	6.5	174	90-3300	4-2 1/4 x 5 1/8	N	Own	4	Own	HyF	H	** 6.17	Own	O4IH	329	478	a	2I	57 3/4	7x2 3/4 x 1/8	C
44	MR	717	134	134	9500	°3117	6.00/20D	7.50/20-8	Own	6-3 1/8 x 3 1/2	235	6.6	192	93-3100	4-2 3/4 x 5 1/8	N	Own	4	Own	HyF	H	** 6.17	Own	O4IH	329	478	a	2I	57 3/4	7x2 3/4 x 1/8	C
45	*MR	834	134	134	•13500	°3380	6.50/20D‡	7.50/20-8	Own	6-3 1/2 x 3 3/4	216	6.5	174	90-3300	4-2 1/4 x 5 1/8	Y	Own	4	Own	HyF	H	** 6.17	Own	O4IH	329	478	a	2I	57 3/4	7x2 3/4 x 1/8	C
46	*MR	860	134	134	•13500	°3385	6.50/20D‡	7.50/20-8	Own	6-3 1/8 x 3 1/2	235	6.6	192	93-3100	4-2 3/4 x 5 1/8	Y	Own	4	Own	HyF	H	** 6.17	Own	O4IH	329	478	a	2I	57 3/4	7x2 3/4 x 1/8	C
47	MS	694	160	160	7700	°3225	6.00/20S†	7.50/20-8S	Own	6-3 1/2 x 3 3/4	216	6.5	174	90-3300	4-2 1/4 x 5 1/8	N	Own	4	Own	HyF	H	5.43	Own	O4IH	329	478	a	2I	83 1/4	7x2 3/4 x 1/8	P
48	MS	720	160	160	7700	°3230	6.00/20S†	7.50/20-8S	Own	6-3 1/8 x 3 1/2	235	6.6	192	93-3100	4-2 3/4 x 5 1/8	N	Own	4	Own	HyF	H	5.43	Own	O4IH	329	478	a	2I	83 1/4	7x2 3/4 x 1/8	P
49	MS	717	160	160	9500	°3365	6.00/20D	7.50/20-8	Own	6-3 1/2 x 3 3/4	216	6.5	174	90-3300	4-2 1/4 x 5 1/8	N	Own	4	Own	HyF	H	** 6.17	Own	O4IH	329	478	a	2I	83 1/4	7x2 3/4 x 1/8	P
50	MS	743	160	160	9500	°3370	6.00/20D	7.50/20-8	Own	6-3 1/8 x 3 1/2	235	6.6	192	93-3100	4-2 3/4 x 5 1/8	N	Own	4	Own	HyF	H	** 6.17	Own	O4IH	329	478	a	2I	83 1/4	7x2 3/4 x 1/8	P
51	*MS	860	160	160	•13500	°3635	6.50/20D‡	7.50/20-8	Own	6-3 1/2 x 3 3/4	216	6.5	174	90-3300	4-2 1/4 x 5 1/8	Y	Own	4	Own	HyF	H	** 6.17	Own	O4IH	329	478	a	2I	83 1/4	7x2 3/4 x 1/8	P
52	*MS	886	160	160	•13500	°3640	6.50/20D‡	7.50/20-8	Own	6-3 1/8 x 3 1/2	235	6.6	192	93-3100	4-2 3/4 x 5 1/8	Y	Own	4	Own	HyF	H	** 6.17	Own	O4IH	329	478	a	2I	83 1/4	7x2 3/4 x 1/8	P
53	(c.o.e.) MU	788	109	109	7700	°3340	6.00/20S†	7.50/20-8S	Own	6-3 1/2 x 3 3/4	216	6.5	174	90-3300	4-2 1/4 x 5 1/8	N	Own	4	Own	HyF	H	5.43	Own	O4IH	329	478	a	2I	62 1/2	7x2 3/4 x 1/8	C
54	(c.o.e.) MU	814	109	109	7700	°3345	6.00/20S†	7.50/20-8S	Own	6-3 1/8 x 3 1/2	235	6.6	192	93-3100	4-2 3/4 x 5 1/8	N	Own	4	Own	HyF	H	5.43	Own	O4IH	329	478	a	2I	62 1/2	7x2 3/4 x 1/8	C
55	(c.o.e.) MU	811	109	109	9500	°3480	6.00/20D	7.50/20-8	Own	6-3 1/2 x 3 3/4	216	6.5	174	90-3300	4-2 1/4 x 5 1/8	N	Own	4	Own	HyF	H	** 6.17	Own	O4IH	329	478	a	2I	62 1/2	7x2 3/4 x 1/8	C
56	(c.o.e.) MU	837	109	109	9500	°3485	6.00/20D	7.50/20-8	Own	6-3 1/8 x 3 1/2	235	6.6	192	93-3100	4-2 3/4 x 5 1/8	N	Own	4	Own	HyF	H	** 6.17	Own	O4IH	329	478	a	2I	62 1/2	7x2 3/4 x 1/8	C
57	*(c.o.e.) MU	954	109	109	•13500	°3750	6.50/20D‡	7.50/20-8	Own	6-3 1/2 x 3 3/4	216	6.5	174	90-3300	4-2 1/4 x 5 1/8	Y	Own	4	Own	HyF	H	** 6.17	Own	O4IH	329	478	a	2I	62 1/2	7x2 3/4 x 1/8	C
58	*(c.o.e.) MU	980	109	109	•13500	°3755	6.50/20D‡	7.50/20-8	Own	6-3 1/8 x 3 1/2	235	6.6	192	93-3100	4-2 3/4 x 5 1/8	Y	Own	4	Own	HyF	H	** 6.17	Own	O4IH	329	478	a	2I	62 1/2	7x2 3/4 x 1/8	C
59	(c.o.e.) MV	813	132	132	7700	°3415	6.00/20S†	7.50/20-8S	Own	6-3 1/2 x 3 3/4	216	6.5	174	90-3300	4-2 1/4 x 5 1/8	N	Own	4	Own	HyF	H	5.43	Own	O4IH	329	478	a	2I	86	7x2 3/4 x 1/8	C
60	(c.o.e.) MV	839	132	132	7700	°3420	6.00/20S†	7.50/20-8S	Own	6-3 1/8 x 3 1/2	235	6.6	192	93-3100	4-2 3/4 x 5 1/8	N	Own	4	Own	HyF	H	5.43	Own	O4IH	329	478	a	2I	86	7x2 3/4 x 1/8	C
61	(c.o.e.) MV	836	132	132	9500	°3555	6.00/20D	7.50/20-8	Own	6-3 1/2 x 3 3/4	216	6.5	174	90-3300	4-2 1/4 x 5 1/8	N	Own	4	Own	HyF	H	** 6.17	Own	O4IH	329	478	a	2I	86	7x2 3/4 x 1/8	C
62	(c.o.e.) MV	862	132	132	9500	°3560	6.00/20D	7.50/20-8	Own	6-3 1/8 x 3 1/2	235	6.6	192	93-3100	4-2 3/4 x 5 1/8	N	Own	4	Own	HyF	H	** 6.17	Own	O4IH	329	478	a	2I	86	7x2 3/4 x 1/8	C
63	*(c.o.e.) MV	979	132	132	•13500	°3825	6.50/20D‡	7.50/20-8	Own	6-3 1/2 x 3 3/4	216	6.5	174	90-3300	4-2 1/4 x 5 1/8	Y	Own	4	Own	HyF	H	** 6.17	Own	O4IH	329	478	a	2I	86	7x2 3/4 x 1/8	C
64	*(c.o.e.) MV	1005	132	132	•13500	°3830	6.50/20D‡	7.50/20-8	Own	6-3 1/8 x 3 1/2	235	6.6	192	93-3100	4-2 3/4 x 5 1/8	Y	Own	4	Own	HyF	H	** 6.17	Own	O4IH	329	478	a	2I	86	7x2 3/4 x 1/8	C
65	(c.o.e.) MW	840	158	158	7700	°3645	6.00/20S†	7.50/20-8S	Own	6-3 1/2 x 3 3/4	216	6.5	174	90-3300	4-2 1/4 x 5 1/8	N	Own	4	Own	HyF	H	5.43	Own	O4IH	329	478	a	2I	111 1/2	7x2 3/4 x 1/8	P
66	(c.o.e.) MW	866	158	158	7700	°3650	6.00/20S†	7.50/20-8S	Own	6-3 1/8 x 3 1/2	235	6.6	192	93-3100	4-2 3/4 x 5 1/8	N	Own	4	Own	HyF	H	5.43	Own	O4IH	329	478	a	2I	111 1/2	7x2 3/4 x 1/8	P
67	(c.o.e.) MW	863	158	158	9500	°3785	6.00/20D	7.50/20-8	Own	6-3 1/2 x 3 3/4	216	6.5	174	90-3300	4-2 1/4 x 5 1/8	N	Own	4	Own	HyF	H	** 6.17	Own	O4IH	329	478	a	2I	111 1/2	7x2 3/4 x 1/8	P
68	(c.o.e.) MW	889	158	158	9500	°3790	6.00/20D	7.50/20-8	Own	6-3 1/8 x 3 1/2	235	6.6	192	93-3100	4-2 3/4 x 5 1/8	N	Own	4	Own	HyF	H	** 6.17	Own	O4IH	329	478	a	2I	111 1/2	7x2 3/4 x 1/8	P
69	*(c.o.e.) MW	1006	158	158	•13500	°4055	6.50/20D‡	7.50/20-8	Own	6-3 1/2 x 3 3/4	216	6.5	174	90-3300	4-2 1/4 x 5 1/8	Y	Own	4	Own	HyF	H	** 6.17	Own	O4IH	329	478	a	2I	111 1/2	7x2 3/4 x 1/8	P
70	*(c.o.e.) MW	1032	158	158	•13500	°4060	6.50/20D‡	7.50/20-8	Own	6-3 1/8 x 3 1/2	235	6.6	192	93-3100	4-2 3/4 x 5 1/8	Y	Own	4	Own	HyF	H	** 6.17	Own	O4IH	329	478	a	2I	111 1/2	7x2 3/4 x 1/8	P

† Rear 7.00/20 8-ply. ‡ Rear 7.50/20 8-ply. ● 14,000 lb. when truck is equipped with two-speed rear axle and 8.25/20 10 ply tires. ▲ Includes special panel body. ♦ Denotes new models or change in specifications.
* Governor set not to exceed 45 m.p.h. ° These are shipping weights and do not include weight of gasoline or water.

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Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE Minimum Standard	WHEEL-BASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear: Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings: Number, Diameter and Length	Governor Standard	TRANSMISSION: Make and Model	TRANSMISSION: Forward Sp'ds	REAR AXLE: Make and Model	REAR AXLE: Gear and Type	REAR AXLE: Drive & Torque	REAR AXLE: Gear Ratio Range in High	FRONT AXLE: Make and Model	BRAKES SERVICE: Make Location Type Operat'n	BRAKES SERVICE: Lining Area	BRAKES SERVICE: Drum Area	BRAKES SERVICE: Drum Material	BRAKES: Hand Location Type	C-A Dimension (Min. Std. W. B.)	FRAME: Side Rail Dimensions	FRAME: Type
1	Federal (●) 8	595	102	128	7000	2500	6.00/16S	7.50/17S	Her QXB3F	6-3¼x4½	205	5.9	144	66-3500	7-2½x10	N	WG-T9	4	Tim 51521H	SF	H	4.11-4.86	Tim 29500H	L4IH	210	308	a	TX	34½	6x2¼x¼	T
2	(6) 16	745	135	250	13000	3960	6.00/20S	7.50/20	Her JXFF	6-3½x4½	232	6.1	164	75-3000	7-2½x10	N	WG T9	4	Tim 53547H	SF	H	5.14-6.66	Tim 30000H	L4IH	299	478	a	TX	56¾	8¼x2⅛x¼	T
3	(6) 17	870	135	250	14000	4250	6.00/20†S	8.25/20	Her JXGF	6-3½x4¼	245	5.7	174	79-3000	7-2½x10	Y	WG T9	4	Tim 53308H	SF	H	5.14-6.66	Tim 30000H	L4IH	299	478	a	TX	56¾	8¼x2⅛x¼	T
4	(6) 18	1045	135	250	15000	4350	6.00/20D	8.25/20	Her JXBF	6-3⅝x4¼	263	6.1	187	82-3000	7-2½x10	Y	WG T9	4	Tim 53308H	SF	H	5.14-6.66	Tim 30003H	L4IHV	302	528	a	TX	56¾	8¼x2⅛x¼	T
5	(6) 20	1245	135	250	17500	4850	6.50/20D	9.00/20	Her JXBF	6-3⅝x4½	263	6.1	187	82-3000	7-2½x10	Y	WG T9	4	Tim 54411H	SF	H	5.83-6.80	Tim 31000H	L4IHV	330	578	a	TX	56¾	8¼x2⅛x¼	T
6	(6) 25	1545	135	250	19000	5200	7.00/20D	9.00/20	Her JXCF	6-3¾x4¼	282	5.9	208	85-2900	7-2½x10	Y	Cla 185F	4	Tim 55411H	SF	H	5.71-7.40	Tim 31000H	L4IHV	330	578	a	TX	56¾	8¼x2⅛x¼	T
7	(6) 29	1960	135	250	20000	5900	7.50/20D	10.00/20	Her JXDF	6-4x4¼	320	5.9	244	95-2800	7-2½x10	Y	Cla 205V	5	Tim 56411H	SF	H	5.71-7.40	Tim 32514H	L4IHV	415	735	a	TX	56¾	8¼x2⅛x¼	T
8	(6) 35	2495	140	255	22500	6700	8.25/20D	10.00/20	Her WXC3	6-4¼x4½	383	6.1	285	114-2800	7-2⅝x13¼	Y	Cla 205V	5	Tim 56411H	SF	H	5.71-7.40	Tim 32515H	L4IHV	415	735	a	TX	57	10½x3⅛x⅞	T
9	(6) 45	3145	140	255	24000	7300	9.00/20D	11.00/24	Her WXLC3	6-4¼x4¾	404	6.3	307	125-2800	7-2⅝x13¾	Y	Cla 270V	5	Tim 58301H	SF	H	5.57-7.80	Tim 33006H	L4IHV	504	844	a	TX	57	10½x3⅛x⅞	T
10	(6) 55	3695	140	255	28000	8000	9.00/20D	11.00/24	Her WXLC3	6-4¼x4¾	404	6.3	307	125-2800	7-2⅝x13¾	Y	Cla 270V	5	Tim 75743H	2F	R	7.00-9.50	Tim 35011H	L4IHV	504	844	a	PD	57	10½x3⅛x⅞	
11	62	5945	141	211	35000	10400	11.00/20D	12.00/24	Con 22RF	6-4½x5¼	501	5.2	400	150-2300	7-2¼x14½	Y	Cla 326VO	5	Tim 76810W	2F	R	6.07-10.42	Tim36000T'W	Ws4IA	620	921	a	TD	57	10⅞x3⅛x⅞	TF
12	(6) ....(c.o.e.) 76	855	104	215	13000	4000	6.00/20S	7.50/20	Her JXFF	6-3½x4½	232	6.1	164	75-3000	7-2½x10	N	WG T9	4	Tim 53547H	SF	H	5.14-6.66	Tim 31100H	L4IH	299	478	a	TX	60	8¼x2⅛x¼	T
13	(6) ....(c.o.e.) 77	980	104	215	14000	4300	6.00/20†S	8.25/20	Her JXGF	6-3½x4¼	245	5.7	174	79-3000	7-2½x10	Y	WG T9	4	Tim 53308H	SF	H	5.14-6.66	Tim 31100H	L4IH	299	478	a	TX	60	8¼x2⅛x¼	T
14	(6) ....(c.o.e.) 80	1355	104	215	17500	4900	6.50/20D	9.00/20	Her JXBF	6-3⅝x4¼	263	6.1	187	82-3000	7-2½x10	Y	WG T9	4	Tim 54411H	SF	H	5.83-6.80	Tim 31102H	L4IHV	330	578	a	TX	60	8¼x2⅛x¼	T
15	(6) ....(c.o.e.) 85	1665	104	215	19000	5250	7.00/20D	9.00/20	Her JXCF	6-3¾x4¼	282	5.9	208	85-2900	7-2½x10	Y	Cla 185F	4	Tim 55411H	SF	H	5.71-7.40	Tim 32515H	L4IHV	374	654	a	TX	60	8¼x2⅛x¼	T
16	(6) ....(c.o.e.) 89	2055	104	215	20000	5950	7.50/20D	10.00/20	Her JXDF	6-4x4¼	320	5.9	244	95-2800	7-2½x10	Y	Cla 205V	5	Tim 56411H	SF	H	5.71-7.40	Tim 32515H	L4IHV	415	735	a	TX	60	8¼x2⅛x¼	T
17	(6) ....(c.o.e.) 90	2695	116	173	22500	6600	8.25/20D	10.00/20	Her WXC3	6-4¼x4½	383	6.1	285	114-2800	7-2⅝x13¼	Y	Cla 205V	5	Tim 56411H	SF	H	5.71-7.40	Tim 35011H	L4IHV	415	735	a	TX	72	10x3¼x¼	T
18	(6) ....(c.o.e.) 92	3320	116	173	24000	7200	9.00/20D	11.00/24	Her WXLC3	6-4¼x4¾	404	6.3	307	125-2800	7-2⅝x13¾	Y	Cla 270V	5	Tim 58301H	SF	H	5.57-7.80	Tim 35011H	L4IHV	504	844	a	TX	72	10x3½x¼	T
19	(6) ....(c.o.e.) 94	3845	116	173	28000	7900	9.00/20D	11.00/24	Her WXLC3	6-4¼x4¾	404	6.3	307	125-2800	7-2⅝x13¾	Y	Cla 270V	5	Tim 75743H	2F	R	7.00-9.50	Tim 35011H	L4IHV	504	844	a	PD	72	10x3½x¼	T
20	Ford Reg...21T-81	.....	134	134	.....	.....	6.00/20†S	8.25/20-10	Own	8-3⅛x3¾	221	5.9	156	90-3800	3-2.25x5.65	N	Own O1T	4	Own	FS	H	5.14-6.67	Own	O4IH	303	506	A	TX	60.06	7x2.75x.21	CTf
21	...Reg...2GT-81	.....	134	134	.....	.....	6.00/20†S	8.25/20-10	Own	8-3⅛x3¾	226	6.7	180	90-3300	4-2.5x5.77	N	Own 1GT	4	Own	FS	H	5.14-6.67	Own	O4IH	303	506	A	TX	60.06	7x2.75x.21	CTf
22	...Reg...29T-81	.....	134	134	.....	.....	6.00/20†S	8.25/20-10	Own	8-3⅛x3¾	239	6.4	176	100-3800	3-2.25x5.65	N	Own O1T	4	Own	FS	H	5.14-6.67	Own	O4IH	303	506	A	TX	84.06	7x2.75x.21	CTf
23	...Reg..218T-81	.....	158	158	.....	.....	6.00/20†S	8.25/20-10	Own	8-3⅛x3¾	221	5.9	156	90-3800	3-2.25x5.65	N	Own O1T	4	Own	FS	H	5.14-6.67	Own	O4IH	303	506	A	TX	84.06	7x2.75x.21	CTf
24	...Reg.2G8T-81	.....	158	158	.....	.....	6.00/20†S	8.25/20-10	Own	6-3⅜x4	226	6.7	180	90-3300	4-2.5x5.77	N	Own 1GT	4	Own	FS	H	5.14-6.67	Own	O4IH	303	506	A	TX	84.06	7x2.75x.21	CTf
25	...Reg..298T-81	.....	158	158	.....	.....	6.00/20†S	8.25/20-10	Own	8-3⅛x3¾	239	6.4	176	100-3800	3-2.25x5.65	N	Own O1T	4	Own	FS	H	5.14-6.67	Own	O4IH	303	506	A	TX	84.06	7x2.75x.21	CTf
26	.(c.o.e.) 211W-81	.....	101	101	.....	.....	6.00/20†S	8.25/20-10	Own	8-3⅛x3¾	221	5.9	156	90-3800	3-2.25x5.65	N	Own O1T	4	Own	FS	H	5.14-6.67	Own	O4IH	303	506	A	TX	59.60	7x2.75x.21	CTf
27	.(c.o.e.) 291W-81	.....	101	101	.....	.....	6.00/20†S	8.25/20-10	Own	8-3⅛x3¾	239	6.4	176	100-3800	3-2.25x5.65	N	Own O1T	4	Own	FS	H	5.14-6.67	Own	O4IH	303	506	A	TX	59.60	7x2.75x.21	CTf
28	.(c.o.e.) 21W-81	.....	134	134	.....	.....	6.00/20†S	8.25/20-10	Own	8-3⅛x3¾	221	5.9	156	90-3800	3-2.25x5.65	N	Own O1T	4	Own	FS	H	5.14-6.67	Own	O4IH	303	506	A	TX	92.93	7x2.75x.21	CTf
29	.(c.o.e.) 29W-81	.....	134	134	.....	.....	6.00/20†S	8.25/20-10	Own	8-3⅛x3¾	239	6.4	176	100-3800	3-2.25x5.65	N	Own O1T	4	Own	FS	H	5.14-6.67	Own	O4IH	303	506	A	TX	92.93	7x2.75x.21	CTf
30	.(c.o.e.) 218W-81	.....	158	158	.....	.....	6.00/20†S	8.25/20-10	Own	8-3⅛x3¾	221	5.9	156	90-3800	3-2.25x5.65	N	Own O1T	4	Own	FS	H	5.14-6.67	Own	O4IH	303	506	A	TX	117.0	7x2.75x.21	CTf
31	.(c.o.e.) 298W-81	.....	158	158	.....	.....	6.00/20†S	8.25/20-10	Own	8-3⅛x3¾	239	6.4	176	100-3800	3-2.25x5.65	N	Own O1T	4	Own	FS	H	5.14-6.67	Own	O4IH	303	506	A	TX	117.0	7x2.75x.21	CTf
32	...1 Ton 21Y-81	.....	122	122	.....	.....	6.00/17‡S	7.50/17	Own	8-3⅛x3¾	221	6.2	156	90-3800	3-2.25x5.65	N	Ow 11Y-21Y§	3	Own	FS	H	4.86-	Own	O4IH	187	308	A	2I	48.06	6x2.25x.19	CTf
33	...1 Ton 2GY-81	.....	122	122	.....	.....	6.00/17‡S	7.50/17	Own	6-3.3x4.4	226	6.7	180	90-3300	4-2.5x5.77	N	Ow 1GY-2GY§	3	Own	FS	H	4.86-	Own	O4IH	187	308	A	2I	48.06	6x2.25x.19	CTf
34	...1 Ton 2NY-81	.....	122	122	.....	.....	6.00/17‡S	7.50/17	Own	4-3⅛x3¾	120	6.0	84	40-3200	3-2.25x4.86	N	Ow ONY	4	Own	FS	H	-6.67	Own	O4IH	187	308	A	2I	48.06	6x2.25x.19	CTf
35	..¾ Ton 21D-81	.....	122	122	.....	.....	6.50/16*S	7.00/16	Own	8-3⅛x3¾	221	6.2	156	90-3800	3-2.25x5.65	N	Ow 11Y-21Y§	3	Own	FS	H	4.86-	Own	O4IH	163	264	A	2I	48.06	6x2.25x.19	CTf
36	..¾ Ton 2GD-81	.....	122	122	.....	.....	6.50/16*S	7.00/16	Own	6-3.3x4.4	226	6.7	180	90-3300	4-2.5x5.77	N	Ow 1GY-2GY§	3	Own	FS	H	4.86-	Own	O4IH	163	264	A	2I	48.06	6x2.25x.19	CTf
37	..¾ Ton 2ND-81	.....	122	122	.....	.....	6.50/16*S	7.00/16	Own	4-3⅛x3¾	120	6.0	84	40-3200	3-2.25x4.86	N	Ow ONY	4	Own	FS	H	-6.67	Own	O4IH	163	264	A	2I	40.06	6x2.25x.19	CTf
38	Com. Car 21C-81	.....	114	114	.....	.....	6.00/16S	6.50/16	Own	8-3⅛x3¾	221	6.2	156	90-3800	3-2.25x5.65	N	Ow 2C1A-01A	3	Own	S¾	H	3.78-4.11	Own	O4IH	163	264	A	2I	40.06	5.92x2.25x.15	CTf
39	Com. Car 2GC-81	.....	114	114	.....	.....	6.00/16S	6.50/16	Own	6-3.3x4.4	226	6.7	180	90-3300	4-2.5x5.77	N	Ow 2GCB§	3	Own	S¾	H	3.78-4.11	Own	O4IH	163	264	A	2I	40.06	5.92x2.25x.15	CTf
40	Com. Car 2NG-81	.....	114	114	.....	.....	6.00/16S	6.50/16	Own	4-3⅛x3¾	120	6.0	84	40-3200	3-2.25x4.86	N	Ow2NCA-2NCB§	3	Own	S¾	H	4.55-	Own	O4IH	163	264	A	2I	40.06	5.92x2.25x.15	CTf
41	Gramm 11A	730	131	155	6500	2850	7.00/16S	7.50/16S	Her QXB3G	6-3¼x4½	205	5.8	144	66-3500	7-2½x10	N	WG T83	3	Spi 51-1	SF	H	**-5.10	Spi 50-1	L4IH	218	328	a	TX	60½	7x2¾x⅞	T
42	(9) 21A	785	131	155	10000	3000	6.00/20S	32x6-8p	Her QXB3G	6-3¼x4½	205	5.8	144	66-3500	7-2½x10	N	WG T9	4	Cla R650	SF	H	4.62-6.17	Cla F182	L4IH	212	352	a	TX	60½	7x2¾x⅞	T
43	(9) 31A	870	131	227	12000	3300	6.00/20S	32x6-8p	Her QXC3G	6-3⅝x4½	221	5.9	154	67-3000	7-2½x10	N	WG T9	4	Cla R750	SF	H	5.10-6.83	Cla F266	L4IH	233	392	a	TX	60½	7½x2¾x¼	T
44	(9) 41A	930	131	227	14000	3750	6.00/20S	8.25/20	Her QXC3G	6-3⅝x4½	221	5.9	154	67-3000	7-2½x10	N	WG T9	4	Tim 53300	SF	H	4.57-6.60	Tim 30000H	L4IH	252	402	a	TX	60½	7½x2¾x¼	T
45	(9) 46A	1150	131	227	14000	3900	6.00/20S	8.25/20	Her JXBG	6-3⅝x4¼	263	6.1	187	82-3000	7-2½x10	N	WG T9A	4	Tim 53300	SF	H	4.57-6.20	Tim 30000H	L4IH	252	402	a	TX	60½	7½x2¾x¼	T
46	(9) 56A	1360	131	227	15000	4700	6.50/20D	8.25/20	Her JXBG	6-3⅝x4¼	263	6.1	187	82-3000	7-2¼x10	N	WG T9A	4	Tim 54411	SF	H	4.12-6.80	Tim 31000H	L4IHV	334	578	a	TX	60½	10x2¾x⅞	P
47	(9) 71A	1675	131	227	17000	5200	7.00/20D	9.00/20	Her JXCG	6-3¾x4¼	282	5.9	208	85-2900	7-2½x10	N	Cla 200V	5	Tim 55411	SF	H	5.71-7.40	Tim 31000H	L4IHV	334	578	a	TX	60½	10x2¾x⅞	P
48	(9) 76A	1990	131	227	19000	5400	7.00/20D	9.75/20	Her JXDG	6-4x4¼	320	5.9	244	95-2800	7-2½x10	N	Cla 200V	5	Tim 56411	SF	H	4.44-7.40	Tim 32500H	L4IHV	334	578	a	TX	60½	10x2¾x⅞	P
49	(9) 86A	2305	131	227	21500	5700	7.50/20D	10.50/20	Her JXDG	6-4x4¼	320	5.9	244	95-2800	7-2½x10	N	Cla 200V	5	Tim 58300	SF	H	5.25-7.80	Tim 33000H	L4IHV	380	660	a	TX	60½	10x2¾x⅞	P
50	(9) 96A	3565	131	227	28000	8000	9.00/20D	10.50/20	Her WXLC3	6-4¼x4¾	404	5.9	294	118-2800	7-2⅝x10	N	Cla 270V	5	Wis 1337H	2F	H	5.63-8.59	Tim 35000H	L4IHV	474	768	a	TX	60½	12x2¾x⅞	P
51	(D) (9)....D46A	2545	131	227	14000	4100	6.00/20S	8.25/20	Her DJXB	6-3½x4½	260	14.	178	77-2600	7-3x10	Y	Cla 185F	4	Tim 53300	SF	H	4.57-5.66	Tim 30000H	L4IH	252	402	a	TX	60½	7½x2¾x¼	T
52	(D) (9)....D56A	2750	131	227	15000	4900	6.50/20D	8.25/20	Her DJXB	6-3½x4½	260	14.	178	77-2600	7-3x10	Y	Cla 185F	4	Tim 54411	SF	H	4.12-6.80	Tim 31000H	L4IHV	334	578	a	TX	60½	10x2¾x⅞	P
53	(D) (9)....D71A	3020	131	227	17000	5400	7.00/20D	9.00/20	Her DJXC	6-3¾x4½	298	14.	194	84-2600	7-3x10	Y	Cla 200V	5	Tim 55411	SF	H	5.72-6.29	Tim 31000H	L4IHV	334	578	a	TX	60½	10x2¾x⅞	P
54	(D) (9)....D76A	3410	131	227	19000	5700	7.00/20D	9.75/20	Bud 6DT31	6-3⅝x5½	317	14.	224	90-2300	7-3x9	Y	Cla 200V	5	Tim 56411	SF	H	4.44-7.40	Tim 32500H	L4IHV	334	578	a	TX	60½	10x2¾x⅞	P
55	(D) (9)....D86A	4445	131	227	21500	6000	7.50/20D	10.50/20	Bud 6DT38	6-3½x5½	389	14.	284	96-2100	7-3x12	Y	Cla 270V	5	Tim 58300	SF	H	5.25-6.83	Tim 33000H	L4IHV	380	660	a	TX	60½	10x2¾x⅞	P
56	(D) (9)....D96A	5330	131	227	28000	8100	9.00/20D	10.50/20	Bud 6DT38	6-3½x5½	389	14.	284	96-2100	7-3x12	Y	Cla 270V	5	Wis 1337H	2F	H	5.63-8.59	Tim 35000H	L4IHV	474	768	a	TX	60½	12x2¾x⅞	P
57	.....G1	5775	150	225	24000	9050	9.75/20D	10.50/20	Her HXC	6-5¼x6	779	4.5	505	143-1600	7-3½x17	N	BL 744	4	Wis 1337H	2F	H	4.29*7.2	Tim 33000	L4IHV	474	768	a	TD	67	12x2½x¼	TF
58	Hug 85W	**	125	125	23000	7150	8.25/20D	9.00/20	Wau 6BZ	6-4x4¼	320	5.7	210	83-2500	7-2⅝x10¼	Y	Fu 5B33	5	Cla R1300	SF	H	**-7.16	Shu 632	L4IHV	442	689	a	TD	72	7x3¾x⅛	I
59	.....87W	**	134	134	31000	9540	11.00/20D	11.00/20	Wau 6MZR	6-4¼x4¾	404	5.3	286	95-2200	7-2⅝x12½	Y	Fu 5A43	5	Wis 1757	2F	T	**-9.2	Shu 647	L4IHV	548	867	a	TD	84	8x4⅛x⅛	I
60	.....92U	**	134	134	37000	11600	11.00/24D	12.00/24	Wau6SRKR	6-4⅝x5½	517	4.5	365	125-2200	7-3x13⅞	Y	Fu 5A62	5	Wis 79746	2F	T	**-10.2	Shu 678	Ws4IA	760	1190	a	TD	84	8x4⅛x⅛	I
61	.....(D) D92U	**	134	134	37000	12065	11.00/24D	12.00/24	Her DRXB	6-4⅞x6	448	17.	370	100-1800	5-4½x11½	Y	Fu 5A62	5	Wis 79746	2F	T	**-10.2	Shu 678	Ws4IA	760	1190	a	TD	84	8x4⅛x⅛	I
62	98	**	171	171	47500	13615	12.00/24D	14.00/24	Wau 6RBR	6-5x5¾	677	5.3	480	144-1800	4-3½x11⅜	Y	Fu 8A86	8	Tim 79746	2F	T	**-10.2	Shu 1673	Ws4IA	760	1190	a	TD	90	9x4⅛x⅞	I
63	.....(D) D98	**	171	171	47500	13615	12.00/24D	14.00/24	Cum HB600	6-4⅞x6	672	17.	500	150-1800	7-4½x16½	Y	Fu 8A86	8	Tim 79746	2F	T	**-10.2	Shu 1673	Ws4IA	760	1190	a	TD	90	9x4⅛x⅞	I
64	International (11)																														
65	.....K-1	550	113	125	4400	2190	6.00/16S	7.00/16S	O-GRD 214	6-3⅛x4½	213	6.3	160	82-3400	4-2⅝x6	N	O HDS	3	Own R1050	S½	H	3.72-5.11	Own F50	L4IH	164	316	s	2I	38	6x2¼x⅛	T
66	.....K-1-M	560	102	113	4600	2090	6.00/16S	7.00/16S	O-GRD 214A	6-3⅛x4½	213	6.3	160	82-3400	4-2⅝x6	Y	O 8AHDSA	3	Own R1050	S½	H	3.72-5.11	Own F150	L4IH	164	316	s	TX	.....	6½x2⅛x⅛	T
67	.....K-2	580	125	....	5200	2225	6.00/16S	7.00/16S	O-GRD 214	6-3⅛x4½	213	6.3	160	82-3400	4-2⅝x6	N	O HDS	3	Own R1050	S½	H	3.72-5.11	Own F50	L4IH	164	316	s	2I	50	6x2¼x⅛	T
68	.....K-3	680	113	130	6650	2940	7.00/16S	6.50/16	O-GRD 214	6-3⅛x4½	213	6.3	160	82-3400	4-2⅝x6	N	O HDSA	3	Own R1150	SF	H	4.22-5.28	Own F150	L4IH	195	367	s	2I	38	6½x2⅜x⅛	T
69	.....K-3-M	670	102	113	7000	2525	7.00/16S	7.50/16S	O-GRD 214A	6-3⅛x4½	213	6.3	160	82-3400	4-2⅝x6	Y	O 8HDSA	3	Own R1150	SF	H	4.87-6.50	Own F260	L4IH	221	367	s	TX	.....	6½x2⅜x⅛	T
70	(a) K-4	710	113	159	10000	3175	32x6S	7.50/20	O-GRD 214	6-3⅛x4½	213	6.3	160	82-3400	4-2⅝x6	N	O H41B	4	Own R1350	SF	H	5.28-6.66	Own F250	LH4IH	226	406	c	TX	38	7x3x⅛	T
71	(a) K-5	770	135	177	13500	3585	6.00/20D	8.25/20	O-GRD 233	6-3⅛x4½	233	6.3	181	93-3400	4-2⅝x6	N	O H41B	4	Own R1360	SF	H	5.28-6.66	Own F350	LH4IH	294	509	c	TX	60	8x3x⅛	T
72	(a) K-6	1125	134	176	14500	4380	6.50/20D	8.25/20	O-BLD 250	6-3⅞x4½	251	6.3	200	100-3200	4-2.7x5	N	O H41C	4	Own R1450	SF	H	5.62-7.16	Own F470	LH4IHV	305	539	c	TX	60	8¼x3x⅜	T

† Rear 6.50/20. * Rear 7.00/16. ‡ Rear 7.00/17 6-ply. ≠ Rear 32x6 single. ↘ ↓ Denotes new models or change in specifications. (●) Federal—Chassis weight shown is for average chassis without cab and complete with average size tires, tools, spare rim, fuel, oil and water. § Fingertip shifting on steering. ** Prices not available.

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Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE Minimum Standard	WHEEL-BASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear: Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings: Number, Diameter and Length	Governor Standard	TRANSMISSION: Make and Model	TRANSMISSION: Forward Sp'ds	REAR AXLE: Make and Model	REAR AXLE: Gear and Type	REAR AXLE: Drive & Torque	REAR AXLE: Gear Ratio Range in High	FRONT AXLE: Make and Model	BRAKES SERVICE: Make Location Type Operat'n	BRAKES SERVICE: Lining Area	BRAKES SERVICE: Drum Area	BRAKES SERVICE: Drum Material	BRAKES: Hand Location Type	C-A Dimension (Min. Std. W. B.)	FRAME: Side Rail Dimensions	FRAME: Type
	Ward La Fr (Cont)																														
1	.....(c.o.e.) K	5643	146	Opt	28000	9500	9.75/20D	10.50/24	Wau SRLR	6-4¾x5½	462	5.0	332	112-2400	7-3x13½	Y	Fu 5A620	5	Wis 1337 H	2F	R	5.6-9.4	Shu 672B1	L4IHV	448	....	a	CD	122	12x3¼	T
2	.....(c.o.e.) L	6651	146	Opt	36000	10000	10.50/20D	10.50/24	Wau SRKR	6-4½x5½	517	5.0	365	126-2400	7-3x13⅜	Y	Fu 5A620	5	Wis 1757W	2F	R	6.00-9.2	Shu 673B12	Ws41A	544	....	a	CD	122	12x3¼	T
3	.....(c.o.e.) J	4803	132	Opt	28000	9000	9.75/20D	10.50/20	Wau MZR	6-4¼x4¾	404	5.7	305	112-2600	7-2⅝x12½	Y	Fu 5A430	5	Wis 1337H	2F	R	5.60-9.40	Shu 672B1	L4IHV	448	....	a	CD	106	12x3¼	T
4	.....(c.o.e.) LD	8709	146	Opt	36000	11000	10.50/20D	10.50/24	Cum HB600	6-4½x6	672	17.	500	150-1800	7-4½x16½	Y	Fu 4A86	5	Wis 1757W	2F	R	6.00-9.20	Shu 673B12	Ws41A	544	....	a	TD	122	12x3¼	T
5	.....(c.o.e.) MD	8951	146	Opt	40000	12500	10.50/20D	10.50/24	Cum HB600	6-4½x6	672	17.	500	150-1800	7-4½x16½	Y	Fu 4A86	5	Wis 1910W	2F	R	7.10-10.0	Shu 673B12	Ws41A	544	....	a	TD	122	12x3¼	T
6	Warford..(C) DC-2	2875	163	200	26500	6200	32x6D	8.25/20	Ford V-8	8-3⅛x3¾	221	6.1	156	90-3800	3-2.5x4.7	N	Ford Own	8	Ford	SF	A	6.67	Ford	6IHV	501	712	A	FX	89	7½x3x½	C
7	.....(C) WC-2	2875	163	204	26500	6100	32x6D	8.25/20	Chev.	6-3½x3¾	217	6.5	174	90-3200	4-2¾x5⅛	N	Chev. Own	8	Chev.	HY	A	6.17	Chev.	6IHV	545	710	A	4I	86¾	7½x3x½	C
8	.....(C) DC-1	2875	163	200	30000	6400	7.50/20D	8.25/20	Ford V-8	8-3⅛x3¾	239	6.1	176	100-3600	3-2.5x4.7	N	Ford Own	8	Ford	SF	A	6.67	Ford	6IHV	501	712	A	FX	89	7½x3x½	C
9	.....(C) WC-1	2875	163	204	30000	6300	7.50/20D	8.25/20	Chev.	6-3⅜x3⅛	235	6.6	192	93-3200	4-2¾x5⅛	N	Chev. Own	8	Chev.	HY	A	6.17	Chev.	6IHV	545	710	A	4I	86¾	7½x3x½	C
10	Willys..(18) SC442	410	104	104	3700	1285	5.50/168	6.00/168	Own 442	1 3⅛x4¼	134	6.1	106	61-3800	3-2.3x5.5	N	WG T84G	3	Sal 21-1	S	H	4.82	Own 442	B4IH	155	220	a	2I	32¾	4¾x1¾x⅛	KX
11	.(18) SCOF442P	(18)	104	104	3900	1285	6.00/168	(18)	Own 442P	4-3⅛x4⅜	134	6.1	106	61-3800	3-2.3x5.5	Y	WG T84G	3	Sal 21-1	S	H	4.82	Own 442P	B4IH	155	220	a	.I	....	4¾x1¾x⅛	KX
	Four-Wheel-Drive																														
12	Corbitt...(10) F-12	2375	Opt	Opt	12500	4460	6.50/20D	8.25/20	Con A6244	6-3⅞x4¾	344	5.4	170	83-3200	4-2¾x6¾	N	WG T9	8	Tim 53521H	SF	H	5.14-6.6	Wis F30B	L4IH	270	452	a	TX	Opt	7⅛x3½x⅛	T
13	.....(10) F-14	3200	Opt	Opt	14500	5060	7.50/20D	8.25/20	Con M6271	6-3⅝x4⅜	271	5.7	191	85-2900	7-2⅝x12⅛	N	Cla B116C	8	Tim 54411H	SF	H	5.83-6.8	Wis F544B	L4IH	335	578	a	TD	Opt	8x3½x¼	T
14	.....(10) F-18	4500	Opt	Opt	18500	6900	8.25/20D	9.00/20	Con B6371	6-4½x4⅝	371	5.7	280	100-2650	7-2⅝x13½	N	Fu 5A43	10	Wis 5002L	2F	H	6.00-8.21	Wis F501H1	L4IH	335	578	a	TD	Opt	9x2½x¼	D
15	.....(10) F-19	4300	Opt	Opt	19500	6500	8.25/20D	9.00/22	Con M-6330	6-4x4⅜	330	5.5	238	103-3000	7-2⅝x12⅛	Y	Fu 5A330	10	Wis 5002L	2F	H	6.62-8.21	Wis F551H	L4IHV	335	578	a	TD	Opt	8x3½x¼	T
16	.....(10) F-23	5500	Opt	Opt	23500	9000	9.00/20D	9.75/22	Con 20-R	6-4½x4¾	381	4.8	276	106-2600	7-2¾x13⅛	N	Fu 5A430	10	Wis 72300H	2F	H	5.61-8.40	Wis F213H	L4IHV	534	786	a	TD	Opt	8½x3½x⅛	T
17	.....(10) F-27	6800	Opt	Opt	27500	10000	9.75/22D	10.50/22	Con 21-R	6-4⅝x4⅛	428	5.0	325	125-2400	7-2¾x13⅛	N	Fu 5A620	10	Wis 1337BH	2F	H	6.36-8.59	Wis F313H	L4IHV	625	976	a	TD	Opt	12¼x3¼x⅛	T
18	.....(10) F-35	8500	Opt	Opt	35500	12500	10.50/20D	11.25/24	Con 22-R	6-4½x5¼	501	5.9	400	150-2200	7-2⅝x12⅛	N	Fu 5A620	10	Wis 1737KW	2F	H	6.39-9.16	Wis F417KW	Ws41A	701	976	a	TD	Opt	12¾x3¾x⅛	T
19	F. W. D.....HS	*°2960	132	156	15000	z6600	7.00/20D	8.25/20	Wau BK	6-3¾x4¼	282	6.0	189	84-2800	7-2⅛x10¼	Y	Fu 5B33	5	Own HS	SF	H	7.10-7.85	Own HS	L4IHV	367	578	G	T4	67¾	9x3x¼	T
20	.....HA	*°3420	132	156	17000	z6800	7.50/20D	9.00/20	Wau BZ	6-4x4¼	320	5.9	222	95-2800	7-2⅝x10¼	Y	Fu 5B33	5	Own H	SF	H	7.30-8.06	Own H	L4IHV	391	660	G	T4	67¾	9x3x¼	T
21	.....HR	*°3980	144	154	20000	z7800	7.50/20D	10.00/20	Wau MKR	6-4½x4¾	381	5.7	270	98-2500	7-2⅝x12½	Y	Fu 5A43	5	Own H	SF	H	7.30-8.06	Own H	L4IHV	391	660	G	T4	79¾	9x3x¼	T
22	.....CU	*°4920	150	182	22000	z9500	10.00/20S	Opt	Wau MZR	6-4¼x4¾	404	5.6	288	106-2500	7-2⅝x12½	Y	Own U	5	Own U	BF	H	6.72-8.84	Own U	L4IHV	496	867	G	T4	90	7⅛x3x⅛	C
23	.....CUA	*°4640	150	182	22000	z9350	10.00/20S	Opt	Wau MZR	6-4¼x4¾	404	5.6	288	106-2500	7-2⅝x12½	Y	Fu 5A43	5	Own U	BF	H	6.72-8.84	Own U	L4IHV	496	867	G	T4	90	7⅛x3x⅛	C
24	.....SU	*°5640	150	182	25000	z10150	12.00/20S	Opt	Wau SRLR	6-4⅝x5½	462	5.5	330	112-2400	7-3x10⅞	Y	Own U	5	Own U	BF	H	6.72-8.84	Own U	L4IHV	496	867	G	T4	90	7⅛x3x⅛	C
25	.....SUA	*°5440	150	182	25000	z10050	12.00/20S	Opt	Wau SRLR	6-4⅝x5½	462	5.5	330	112-2400	7-3x10⅞	Y	Fu 5A62	5	Own U	BF	H	6.72-8.84	Own U	L4IHV	496	867	G	T4	90	7⅛x3x⅛	C
26	.....YU	*°6300	150	182	26000	z10300	11.00/20D	Opt	Wau SRKR	6-4⅝x5½	517	5.5	369	126-2300	7-3x10⅞	Y	Own U	5	Own U	BF	H	6.72-8.84	Own U	L4IHV	496	867	G	T4	90	8x3x⅛	C
27	.....MJ6	*°7040	150	180	30000	z13250	11.00/20D	Opt	Wau SRKR	6-4⅝x5½	517	5.5	369	126-2300	7-3x10⅞	Y	Own M	10	Wis 1337	2F	H	6.65-8.67	Wis 1337	L4IHV	578	976	G	T4	90	10⅛x3x⅛	C
28	.....M6	*°7850	150	180	32000	z13800	11.00/20D	Opt	Wau 140GK	6-4½x5½	525	5.8	410	138-2300	7-3¼x13⅛	Y	Own M	10	Wis 1757	2F	H	6.42-8.47	Wis 1757	L4IHV	578	976	G	T4	90	10⅛x3x⅛	C
29	.....M7	*°8800	150	180	38000	z14000	13.00/20S	Opt	Wau 145GK	6-5¼x6	779	5.6	580	162-2000	7-3½x17¾	Y	Own M	10	Wis 1757	2F	H	6.42-8.47	Wis 1757	L4IHV	578	976	G	T4	90	10⅛x3x⅛	C
30	.....M10	*°10400	150	180	42000	z14250	14.00/20S	Opt	Her HXE	6-5¾x6	935	5.5	610	198-2000	7-3½x16⅝	Y	Own M	10	Wis 1910	2F	H	7.16-9.23	Wis 1910	Ws41A	639	976	G	T4	90	10⅛x3x⅛	C
31	.....(T) T26	*°2990	132	156	(x)	z6600	7.00/20D	8.25/20	Wau BK	6-3¾x4¼	282	5.7	189	84-2800	7-2⅛x10¼	Y	Fu 5B330	5	Own HS	SF	H	6.48-8.78	Own HS	L4IHV	367	578	G	T4	67¾	9x3x¼	T
32	.....(T) T30	*°3450	132	156	(x)	z6800	7.50/20D	9.00/20	Wau BZ	6-4x4¼	320	5.9	222	95-2800	7-2⅝x10¼	Y	Fu 5B330	5	Own H	SF	H	6.66-9.04	Own H	L4IHV	391	660	G	T4	67¾	9x3x¼	T
33	.....(T) T32	*°4010	132	154	(x)	z7800	7.50/20D	10.00/20	Wau MKR	6-4½x4¾	381	5.7	270	98-2500	7-2⅝x12½	Y	Own H	5	Own H	SF	H	6.66-9.04	Own H	L4IHV	391	660	G	T4	67¾	9x3x¼	T
34	Kenworth.....539	6730	134	146	24000	10180	9.00/20D	10.00/24	Wau MZR	6-4¼x4¾	404	5.9	300	112-2600	7-3x11½	Y	Fu 5A62	5	Wis 72300	2F	H	5.77-8.40	Wis F207	L4IHV	458	785	a	PD	72	7½x3¼x½	C
35	540	7976	134	146	27700	10310	10.00/20D	10.00/24	Wau MZR	6-4¼x4¾	404	5.9	300	112-2600	7-3x11½	Y	Fu 5A62	5	Wis 1337	2F	H	6.85-9.41	Wis F323	Ws41A	648	975	a	PD	72	7½x3¼x½	C
36	541	8619	134	146	27700	10650	10.00/20D	10.00/24	Bud LO525	6-4½x5½	525	5.5	385	135-2200	7-3x11½	Y	Fu 5A62	5	Wis 1337	2F	H	6.85-9.41	Wis F323	Ws41A	648	975	a	PD	72	7½x3¼x½	C
37	542	9253	134	146	35000	10935	10.50/20D	11.00/24	Bud LO525	6-4½x5½	525	5.5	385	135-2200	7-3x11½	Y	Fu 5A62	5	Wis 1757	2F	H	6.02-8.50	Wis F427	Ws41A	648	975	a	PD	72	7½x3¼x½	C
38	Marmon-(C) LD6-4	**	114	114	4500	2719	7.50/15S	7.50/15S	Ford V8†	8-3⅛x3¾	221	6.1	150	90-3800	3-2.5x4.71	N	Ford	4	Ford	S¾	U	**-4.5	Own LD5	FO4IH	162	264	ac	2I	40⅛	5⅜x2¼x.15	TDx
39	Herr..(C) OT5-4	**	122	122	6800	3972	7.00/18S	7.50/18S	Ford V8†	8-3⅛x3¾	221	6.1	151	90-3800	3-2.5x4.71	N	Ford	4	Ford	SF	H	*-4.86	Own OT4	FO4IH	201	308	ac	2I	48⅛	6x2¼x.19	T
40	.....(C) MM5-4	**	134	134	13500	4361	6.00/20D	7.50/20	Ford V8†	8-3⅛x3¾	239	6.1	176	100-3600	3-2.5x4.71	N	Ford	4	Ford	SF	H	**-6.67	Own IX4-11	FO4IH	303	506	ac	TX	60⅛	7x2¾x.21	T
41	.....(C) MM6-4	**	158	158	13500	4441	6.00/20D	7.50/20	Ford V8†	8-3⅛x3¾	239	6.1	176	100-3600	3-2.5x4.71	N	Ford	4	Ford	SF	H	**-6.67	Own IX4-11	FO4IH	303	506	ac	TX	84⅛	7x2¾x.21	T
42	(C) (c.o.e.) MM5-4	**	134	134	13500	4531	6.00/20D	7.50/20	Ford V8	8-3⅛x3¾	239	6.1	176	100-3600	3-2.5x4.71	N	Ford	4	Ford	SF	H	**-6.67	Own IX4-12	FO4IH	303	506	ac	TX	93	7x2¾x.21	T
43	(C) (c.o.e.) MM6-4	**	158	158	13500	4611	6.00/20D	7.50/20	Ford V8	8-3⅛x3¾	239	6.1	176	100-3600	3-2.5x4.71	N	Ford	4	Ford	SF	H	**-6.67	Own IX4-12	FO4IH	303	506	ac	TX	117	7x2¾x.21	T
44	..... DSD100-4	**	143	Op	13200	5040	6.50/20D	7.50/20	Her JXB	6-3⅝x4¼	263	5.4	182	78-2800	7-2⅛x10⅛	N	WG T9WG	4	Tim MH1011	SF	H	*-6.8	TWH 101	L4IH	267	452	a	TX	60	7⅛x2½x¼	CC
45	..... DSD200-4	**	143	Op	13200	5500	7.00/20D	7.50/20	Her JXC	6-3¾x4¼	282	5.3	196	84-2800	7-2½x10⅛	N	Ful 5A33	5	Tim MH1011	SF	H	*-6.8	TWH 101	L4IH	267	452	a	TX	60	7⅛x2½x¼	CC
46	..... DSD300-4	**	143	Op	15900	5764	7.50/20D	8.25/20	Her JXD	6-4x4¼	320	5.3	224	95-2800	7-2⅛x10⅛	N	Ful 5A33	5	Tim MH1022	SF	H	*-6.8	TWH 102	L4IH	281	527	a	TX	60	7⅛x2½x¼	C
47	..... DSD400-4	**	158	Op	19500	7782	8.25/20D	9.00/20	Her WXC3	6-4¼x4½	383	5.0	260	106-2800	7-2⅝x13¼	Y	Ful 5A430	5	Tim MH1033	SF	H	*-6.83	TWH-103	L4IH	342	578	a	FD	72	9⅛x3x¼	C
48	..... DSD500-4	**	158	Op	23400	8680	9.00/20D	9.75/20	Her WXLC3	6-4¼x4¾	404	5.0	293	118-2800	7-2⅝x13¼	Y	Ful 5A430	5	Tim MH1044	SF	H	*-7.8	TWH 104	L4IH	384	785	a	FD	72	9⅛x3x¼	C
49	..... DSD-550-4	**	158	Op	23400	8940	9.00/20D	9.75/20	Her RXB	6-4½x5¼	501	5.4	360	121-2200	7-3x13¼	Y	Ful 5A620	5	Tim MH1044	SF	H	*-7.8	WH 104	L4IH	384	785	a	FD	72	9⅛x3x¼	C
50	...DSD550DR-4	**	158	Op	23400	9950	9.00/20D	9.75/26	Her RXB	6-4½x5¼	501	5.4	360	121-2200	7-3x13¼	Y	Ful 5A620	5	Wis MH1066	2F	H	*-7.52	WH 106	L4IH	738	975	a	FD	72	9⅛x3x¼	C
51	..... DSD600-4	**	161	Op	23400	9700	9.00/20D	9.75/20	Her RXB	6-4½x5¼	501	5.4	360	121-2200	7-3x13¼	Y	Ful 5A620	5	Wis MH1055	2F	H	*-7.21	WH 105	L4IH	461	785	a	FD	72	9⅛x3x¼	C
52	..... DSD700-4	**	161	Op	25200	10300	9.75/20D	9.75/22	Her RXB	6-4½x5¼	501	5.4	360	121-2200	7-3x13¼	Y	Ful 5A620	5	Wis MH1077	2F	H	*-7.52	WH 107	Ws41A	738	975	a	FD	72	10⅛x3x⅛	C
53	..... DSD800-4	**	161	Op	30000	10850	10.50/20D	10.50/22	Her RXC	6-4⅝x5¼	529	4.9	390	131-2200	7-3x13¼	Y	Ful 5A620	5	Wis MH1088	2F	H	*-8.23	WH 108	Ws41A	738	975	a	FD	72	10⅛x3x⅛	C
54	..... DSD900-4	**	195	Op	30000	13500	10.50/20D	10.50/22	Her HXD	6-5½x6	855	4.8	555	180-2200	7-3½x16⅜	Y	Ful 4A86	4	Wis MH1088	2F	H	*-8.23	WH 108	Ws41A	738	975	a	FD	102	10⅛x3x⅜	P
55	..... DSD1000-4	**	195	Op	40000	15650	10.50/24D	12.75/20	Her HXE	6-5¾x6	935	4.5	610	198-2200	7-3½x16⅜	Y	Ful 4A86	4	Wis MH1090	2F	H	*-8.88	WH 109	Ws41A	738	975	a	FD	102	10⅛x3x⅜	P
56	(D) DDSD200-4	**	143	Op	13200	5675	7.50/20D	7.50/20	Her DJXB	6-3½x4½	260	14.	178	79-2600	7-3x11⅜	S	Ful 5A33	5	Tim MH1011	SF	H	*-5.83	TWH 101	L4IH	207	452	a	TX	60	7½x2½x¼	C
57	(D) DDSD300-4	**	143	Op	15900	6155	7.50/20D	8.25/20	Her DJXC	6-3¾x4½	298	14.	208	83-2600	7-3x11⅜	S	Ful 5A33	5	Tim MH1022	SF	H	*-5.83	TWH 102	L4IH	281	527	a	TX	60	7½x2½x¼	C
58	D DDSD550DR-4	**	158	Op	23400	10560	9.00/20D	9.75/20	Her DRXB	6-4¾x5½	474	14.	350	124-2200	7-3x13⅛	S	Wis MH1066	2F	Wis MH1066	2F	H	*-6.65	WH 106	L4IH	738	975	a	FD	72	9⅛x3x¼	C
59	(D) DDSD700-4	**	161	Op	25200	10910	9.75/20D	9.75/22	Her DRXB	6-4¾x5½	474	14.	350	124-2200	7-3x13⅛	S	Wis MH1077	2F	Wis MH1077	2F	H	*-6.65	WH 107	Ws41A	738	975	a	FD	72	10⅛x3x⅛	C
60	(D) DDSD800-4	**	161	Op	30000	11435	10.50/20D	10.50/22	Her DRXB	6-4¾x5¾	474	14.	350	124-2200	7-3x13⅜	S	Ful 5A620	5	Wis MH1088	2F	H	*-7.0	WH 108	Ws41A	738	975	a	FD	102	10⅛x3x⅜	P
61	(D) DDSD900-4	**	198	Op	30000	14200	10.50/20D	10.50/22	Her DHXB	6-5x6	707	14.	530	176-1800	7-3¾x17	Y	Ful 4A86	4	Wis MH1088	2F	H	*-7.22	WH 108	Ws41A	738	975	a	FD	102	10⅛x3x⅜	P
62	(D) DDSD1000-4	**	198	Op	40000	16375	10.50/24D	10.50/24	Her DHXB	6-5x6	707	14.	530	176-1800	7-3¾x17	Y	Ful 4A86	4	Wis MH1099	2F	H	*-7.98	WH 109	Ws41A	738	975	a	FD	102	10⅛x3x⅜	P
63	Oshkosh....W-100	**	130	160	15000	6300	7.00/20D	8.25/20	Her JXC	6-3¾x4¼	282	5.3	215	87-3000	7-2⅛x10⅛	Y	Fu 5B33	5	Own 100	SF	H	6.8	Own 100	L41H‡	335	578	a	TX	71	6x3½x¼	Tfp
64	.....W-200	**	130	160	18000	6600	7.50/20D	8.25/20	Her JXD	6-4x4¼	320	5.3	230	96-2800	7-2½x10¼	Y	Fu 5B33	5	Own 200	SF	H	5.71	Own 200	L41H	335	578	a	TX	71	6x3½x¼	Tfp
65	.....W-300	**	149	205	22000	9100	10.00/20S	11.00/20	Her WXC3	6-4¼x4½	383	6.0	290	105-2500	7-2⅝x13¾	Y	Fu 5A43	5	Own 300	SF	H	7.8	Own 300	L41H	560	867	G	TX	82	8¼x3x⅜	Tf

‡ Denotes new models or change in specifications.
† 6 cylinder engine may be installed.

* Includes price of cab.

** Prices not available at this time.

(x) Tire capacity governs gross load.

2 All chassis weights include cab.

° Prices subject to change without notice.

| | | |

Line Number	MAKE AND MODEL	Wheels Driven	Chassis List Price	WHEEL-BASE Minimum Standard	WHEEL-BASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES Standard Front and Rear	TIRE SIZES D-dual rear S-single rear	TIRE SIZES Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings Number, Diameter and Length	Governor Standard	TRANSMISSION Make and Model	Forward Sp'ds	REAR AXLE Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range in High	FRONT AXLE Make and Model	BRAKES SERVICE Make Location Type Operat'n	BRAKES SERVICE Lining Area	BRAKES SERVICE Drum Area	BRAKES SERVICE Drum Material	BRAKES Hand Location Type	C-A Dimension (Min. Std. W. B.)	FRAME Side Rail Dimensions	FRAME Type
1	Marmon-Herr.	▶																															
2	..... D8D200-6		**	167	Op	19500	8065	7.00/20D		7.00/20	Her JXC	6-3½x4¾	282	5.3	196	84-2800	7-2½x10⅛	N	Ful 5A33	5	Wis ME1100	2F	L	*-7.36	WH 110	L6IH	549	930		TX	84	7H x2½x¾	P
3	..... D8D300-6		**	167	Op	25500	9025	7.50/20D		8.25/20	Her JXD	6-4x4¼	320	5.3	224	95-2800	7-2½x10⅛	N	Ful 5A33	5	Wis ME1111	2F	R	*-7.66	WH 111	L6IH	600	1055		TX	84	7H x2½x¾	P
4	..... D8D400-6		**	158	Op	26500	9600	8.25/20D		9.00/20	Her WXC3	6-4¼x4¼	383	5.0	260	106-2800	7-2¾x13¼	Y	Ful 5A430	5	TW ME1133	2F	R	*-9.33	WH 113	W6IA	726	1300	a	FD	84	9H x3⅜x¾	P
5	..... D8D500-6		**	158	Op	32500	10400	8.25/22D		9.00/20	Her WXLC3	6-4¼x4¼	383	5.0	260	106-2800	7-2¾x13¼	Y	Ful 5A430	5	TW ME1133	2F	R	*-8.43	WH 113	W6IA	726	1300	a	FD	84	9H x3⅜x¾	P
6	..... D8D600-6		**	173	Op	32500	12200	9.00/20D		9.00/20	Her RXB	6-4½x5¼	474	14.3	330	121-2200	7-3x13¾	Y	Ful 5A620	5	TW ME1144	2F	R	*-8.14	WH 114	W6IA	1056	1626	a	FD	84	10H x3⅜x¾	P
7	..... D8D800-6		**	173	Op	42000	14475	9.75/22D		9.75/22	Her RXC	6-4½x5¼	529	14.9	390	131-2200	7-3⅜13¾	Y	Ful 5A620	5	TW ME1144	2F	R	*-8.14	WH 114	W6IA	1056	1626	a	FD	96	10H x3⅜x¾	P
8	..... D8D900-6		**	192	Op	42000	17590	9.75/20D		9.75/22	Her HXD	6-5½x6	855	4.5	555	180-2200	7-3½x16⅝	Y	Ful 4A86	4	TW ME1144	2F	R	*-9.11	WH 114	W6IA	1056	1626	a	FD	102	10 x3⅜x¾	P
9	..... D8D1000-6		**	198	Op	52000	19200	10.50/20D		10.50/24	Her HXE	6-5½x6	935	4.5	610	199-2200	7-3½x16⅝	Y	Ful 4A86	4	TW ME1155	2F	R	*-9.11	WH 115	W6IA	1056	1626	a	FD	102	10 x3⅜x¾	P
(D)	DD8D1000-6		**	198	Op	52000	19500	10.50/20D		10.50/24	Her DJXB	6-3½x4¼	260	14.3	178	79-2600	7-3x10⅞	N	Ful 5A33	5	W ME1100	2F	R	*-6.66	WH 110	L6IH	549	930	a	TX	84	7H x2½x¾	P
(D)	DD8D300-6		**	167	Op	25500	9425	7.50/20D		8.25/20	Her DJXC	6-3½x4¼	208	14.3	208	83-2600	7-3x10⅞	N	Ful 5A33	5	W ME1111	2F	R	*-6.41	WH 111	L6IH	600	1055	a	FD	84	7H x2½x¾	P
(D)	DD8D600-6		**	173	Op	32500	12800	9.00/20D		9.00/20	Her DRXB	6-4½x5¼	474	14.3	330	121-2200	7-3x13¾	Y	Ful 5A620	5	TW ME1133	2F	R	*-7.66	WH 113	W6IA	726	1300	a	FD	84	9H x3⅜x¾	P
(D)	DD8D800-6		**	173	Op	42000	15060	9.75/20D		9.75/22	Her DRXB	6-4½x5¼	474	14.3	350	124-2200	7-3x13¾	Y	Ful 5A620	5	TW ME1144	2F	R	*-8.14	WH 114	W6IA	1056	1626	a	FD	96	10 x3⅜x¾	P
13	(D) DD8D900-6		**	192	Op	42000	18325	9.75/20D		9.75/22	Her DHXB	6-5x6	707	14.3	530	176-1800	7-3½x17	Y	Ful 4A86	4	TW ME1144	2F	R	*-8.14	WH 114	W6IA	1056	1626	a	FD	102	10 x3⅜x¾	P
14	(D) DD8D1000-6		**	198	Op	52000	19950	10.50/20D		10.50/24	Her DHXB	6-5x6	707	14.3	530	176-1800	7-3½x17	Y	Ful 4A86	4	TW ME1155	2F	R	*-6.67	Own 1X4-11	FO61H	503	836	ac	TX	82 ⅞	7½x3x 21	TL
15	.... (C) MM5-6		**	156	Op	22500	5875	6.00/20D		7.50/20	Ford V8†	8-3x3¾	239	6.1	176	100-3600	3-2.554.71	N	Ford	4	Tim Ford	8F	R	*-6.67	Own 1X4-11	FO61H	503	836	ac	TX	106 ⅛	7½x3x 21	TL
16	.... (C) MM6-6		**	180	Op	22500	5997	6.00/20D		7.50/20	Ford V8†	8-3x3¾	239	6.1	176	100-3600	3-2.554.71	N	Ford	4	Tim Ford	8F	R	*-6.67	Own 1X4-12	FO61H	503	836	ac	TX	115	7½x3x 21	TL
17	(C) (e.o.e.) MM5-6		**	156	Op	22500	6045	6.00/20D		7.50/20	Ford V8	8-3¼x3¾	239	6.1	176	100-3600	3-2.554.71	N	Ford	4	Tim Ford	8F	R	*-6.67	Own 1X4-11	FO61H	503	836	ac	TX	115	7½x3x 21	TL
18	(C) (e.o.e.) MM6-6		**	180	Op	22500	6167	6.00/20D		7.50/20	Ford V8	8-3¼x3¾	239	6.1	176	100-3600	3-2.554.71	N	Ford	4	Tim Ford	8F	R	*-6.67	Own 1X4-12	FO61H	503	836	ac	TX	139	7½x3x 21	TL
19	Sterling																																
20	... (16) HWS140		**	166	227	36000	10975	9.00/20D		10.00/20D	Wau 6MZR	6-4½x4¾	404	5.6	286	106-2500	7-2⅝x12½	Y	Fu 5A430	5	Tim SW3000PA	WF	L	5.40-8.50	Tim 36000N	W84FIA	878	1376	a	TX	87	9x3½x¾	A
21	... (16) HWS160		**	166	227	40000	11475	10.00/20D		11.00/20D	Wau6SRKR	6-4⅝x5½	517	5.5	369	125-2250	7-3x13¾	Y	Fu 5A62	5	Tim SW3000PA	WF	L	5.40-8.50	Tim 36000N	W84FIA	870	1316	a	TX	90	9x3½x¾	A
22	... (16) HWS235		**	178	251	50000	14525	11.00/20D		11.00/24D	Wau 145GS	6-4⅝x6	638	6.1	480	152-2100	7-3½x17¾	Y	Fu 4B86	4	Tim SW452W	WF	L	5.97-9.75	Tim 27451N	W84FIA	868	1368	a	JX	73	9¼x3⅜x¾	A
23	..... (16) HCS265		**	161	251	60000	17100	11.00/20D		12.00/24D	Wau 145GK	6-5¼x6	779	6.2	585	186-2100	7-3½x17¾	Y	Fu 4B86‡	4	Own 330W	CD	R	10.76-15.3	Tim 27451N	W84FIA	988	1552	a	JX	73	9¼x3⅜x¾	A
24	..... (16) HCS297		**	161	251	70000	20025	12.0/24D•		13.0/24D•	Wau 145GK	6-5¼x6	779	6.2	585	186-2100	7-3½x17¾	Y	Fu 4B86‡	4	Own 330W	CD	R	10.76-15.3	Tim 27451N	W84FIA	988	1552	a	JX	93	12x3½x¾	Y
25	Trucksteel																																
26	(C) TRC-2X400 2F		**	157	218	26000	6100	8.25/20D		8.25/20	Chev	6-3¾x3⅞	235	6.6	192	93-3000	4-2¾x5½	N	Chev	8	Eat 1475	8Fd	H	5.83-8.57	Chev	B6IHV	511	729	a	2I	83	7¼x3x	
27	(C) TRC-2X400 2F		**	154	204	27000	6250	8.25/20D		8.25/20	Chev	6-3¾x3⅞	235	6.6	192	93-3000	4-2¾x5½	N	Chev	8	Eat 1475	8Fd	H	5.5-9.02	Chev	B6IHV	511	729	a	2I	83	7¼x3x	
28	(C) TRC-4XD226 4R		**	141	182	27000	6690	7.50/20D		8.25/20	Chev	6-3¾x3⅞	235	6.6	192	93-3000	4-2¾x5½	N	Chev-0	8	Eat 1475	8Fd	H	5.5-9.02	Chev	C6IHV	511	729	a	2I	83	7¼x3x	
29	(C) TRC-4XD226 4R		**	141	182	30000	7550	8.25/20D		8.25/20	Chev	6-3¾x3⅞	235	6.6	192	93-3000	4-2¾x5½	N	Chev-0	8	Eat 1475	8Fd	H	5.5-9.02	Chev	C6IHV	511	729	a	2I	83	7¼x3x	
30	(C) TRF-2X250 2F		**	155	252	22000	5900	7.50/20D		8.25/20	Ford	8-3¼x3¾	239	...	176	95-3600	3-2.554.7	N	Ford	8	Eat 1350	8Fd	H	5.83-8.57	Ford	F61HV	501	836	a	TX	81 ½	7½x3x	
31	(C) TRF-2X400 2F		**	156	253	26000	6000	8.25/20D		8.25/20	Ford	8-3¼x3¾	239	...	176	95-3600	3-2.554.7	N	Ford	8	Eat 1460	8Fd	H	5.5-9.02	Ford	F61HV	501	836	a	TX	83	7½x3x	
32	(C) TRF-2X250 2F		**	122	241	23000	5950	7.50/20D		8.25/20	Ford	8-3¼x3¾	239	...	176	95-3600	3-2.554.7	N	Ford	8	Eat 1350	8Fd	H	5.83-8.57	Ford	F61HV	501	836	a	TX	81 ½	7½x3x	
33	(C) TRF-2X400 2F		**	123	242	27000	6050	8.25/20D		8.25/20	Ford	8-3¼x3¾	239	...	176	95-3600	3-2.554.7	N	Ford	8	Eat 1460	8Fd	H	5.5-9.02	Ford	F61HV	501	836	a	TX	83	7½x3x	
34	(C) TRF-4XD226 4R		**	143	210	27000	6690	7.50/20D		8.25/20	Ford	8-3¼x3¾	239	...	176	95-3600	3-2.554.7	N	Ford-0	8	Eat 1350	8Fd	H	6.88-8.57	Ford	F61HV	501	836	a	TX	67¾	7½x3x	
35	(C) TRF-4XD26E0 4R		**	143	210	29000	6880	8.25/20D		8.25/20	Ford	8-3¼x3¾	239	...	176	95-3600	3-2.554.7	N	Ford-0	8	Ford	8Fd	H	6.88-7.87	Ford	F61HV	501	836	a	TX	77¾	7½x3x	
36	(C) TRF-4XD27F 4R		**	117	180	27000	6720	7.50/20D		8.25/20	Ford	8-3¼x3¾	239	...	176	95-3600	3-2.554.7	N	Ford-0	8	Eat 1350	8Fd	H	6.88-9.56	Ford	F61HV	501	836	a	TX	67¾	7½x3x	
37	(C) TRF-4XD30E0 4R		**	117	180	30000	7880	8.25/20D		8.25/20	Ford	8-3¼x3¾	239	...	176	95-3600	3-2.554.7	N	Ford-0	8	Eat 1460	8Fd	H	6.88-9.56	Ford	F61HV	501	836	a	TX	77¾	7½x3x	
38	(C) TRC-4XD31E0		**	154	210	31000	7550	7.50/20D		8.25/20	Chev	6-3¾x3⅞	235	6.6	192	93-3000	4-2¾x5½	N	Chev-0	8	Eat 1475	8Fd	H	7.67	Chev	C6IHV	511	729	a	2I	66	7½x3x	
39	(C) TRF-4XD30E		**	143	210	30000	7850	8.25/20D		8.25/20	Ford	8-3¼x3¾	239	...	176	95-3600	3-2.554.7	N	Ford-0	8	Eat 1350	8Fd	H	7.67	Ford	F61HV	501	836	a	TX	77¾	7½x3x	
40	(C) TRF-4XD31E0		**	117	180	31000	7850	7.50/20D		8.25/20	Ford	8-3¼x3¾	239	...	176	95-3600	3-2.554.7	Y	Ford-0	16	Eat 1460	8Fd	H	7.67	Ford	F61HV	501	836	a	TX	77¾	7½x3x	

**Prices not available at this time. † 6 cylinder engine may be installed. ♦ Denotes new models or change in specifications. x Front 7.00/20. ● 11.00/24 single front. ¶ 12.00/24 single front. ‡ 3 speed auxiliary transmission standard.

Tire Ration Certificate and Issuance Procedure Changed

Changes in the form of the tire rationing certificate issued to consumers, and several revisions and simplifications in the procedure for its issuance asd use, were announced by the Office of Price Administration.

The new form, Revised R-2, will be a consolidation of two forms now in use. Previously, one form had been used for new tires and tubes, and another for recapped tires or recapping services.

A further simplification is the provision that applicants for tires or tubes no longer are required to sign the certificate in the presence of a member of the local War Price and Rationing Board, so that the board may now mail a certificate to a successful applicant. Moreover, the previous requirement that a certificate had to be signed by two board members has been dropped, and signature by the issuing officer now is all that is necessary.

The procedure for purchase of tires by mail, heretofore applicable only when the tires were bought from a mail order house, has been extended to cover any purchases by mail. Under the procedure which is thus extended, a purchaser by mail is not required to turn in the tires he has on his car at the time he gives his certificate to his supplier. He may wait until he gets the tires or tubes he has ordered before turning in his old ones. However, the local board will require proof that the turn-in has been made within five days after receipt of the replacements.

Another step to facilitate enforcement of the regulations is a new provision that Part B of a certificate—the part that must flow upstream along with orders for stock replenishments—has to be endorsed by each holder in turning it over to another for replenishments.

The same amendment which makes these changes provides that Form R-20, a certificate which authorizes establishment of emergency reserves of tires and tubes by a restricted list of long-haul truck operators, also will have to be signed hereafter by only one member of the issuing board and need not be signed by the applicant in the presence of the board.

These changes were made by Amendment 35 to the Revised Tire Rationing Regulations, Effective Oct. 5, 1942.

CCJ QUIZ

by ROBERT F. BAHL

(Correct Answers on Page 136)

Professor was down to the garage and had a long chat with Jim, the mechanic. Now Professor is back with a whole new set of Quiz Questions. Jim, of course, knew all the answers—because he suggested them—but see how many you know. Check your choice and then compare with the correct answers on page 136. Take a credit of 10 points for each one you get right, and see how close you can come to the 100 mark.

1

Jim was using a "vernier" when Prof. stopped in, so you should know that he was—

a. measuring a dimension
b. re-treading a tire.
c. replacing a bushing.
d. testing a battery.

2

Where would be the logical place to start looking if you were trying to find a Woodruff key on your truck?

a. On the instrument panel.
b. On the door.
c. On the gas cap.
d. On the crankshaft.

3

This question concerns threads, but a seamstress has no better chance than anyone else. The diameter being the same, which of these gives you the greatest number of threads per inch?

a. U. S. Standard Thread.
b. S. A. E. Thread.
c. Standard Pipe Thread.

4

Jim is holding an object and pointing out the head, skirt, first land, and thrust face. Name the object.

a. Cylinder head.
b. Piston.
c. Roller bearing.
d. Blond chorus girl.

5

He puts that object down and picks up another one, on which he points out the third brush, brush holder, pole piece, and field frame. Name this one.

a. Paint spray.
b. Generator.
c. Battery.
d. Bendix drive.

6

How easy is this one for you? An "Ezy-out" is a tool that is used to—

a. take the air out of a tire.
b. remove old rivets from a brake band.
c. clean off the carbon from valves.
d. remove a broken screw or stud.

7

When Jim uses 50/50 solder, half the product is lead and the other half is—

a. Copper.
b. Tin.
c. Aluminum.
d. Zinc.

8

When Jim wants to test the percentage of various gases from the exhaust, he uses—

a. a Gasometer.
b. an Orsat apparatus.
c. a Pyrometer.
d. a Tachometer.

9

Solderless fittings used with copper tubing for gas lines, etc., are known as—

a. Screw fittings.
b. Streamline fittings.
c. Flare fittings.

10

Jim says the carburetor control spring he is installing is used to exert a pull, hence to maintain a tension on a part or assembly. Therefore, the spring must be of the—

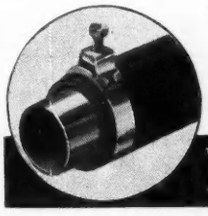
a. Compression type.
b. Extension type.
c. Torson type.
d. Flat type.

DIAMOND T Cargo Trucks and Half-Tracs *for our country's fighting men*

EQUIPPED WITH

WITTEK NOC-OUT HOSE CLAMPS

Speeding over the roughest ground, climbing steep embankments and traveling through the deepest sand and snow and muck, these modern military vehicles, manufactured by Diamond T Motor Car Company, are equipped with Wittek Noc-Out Hose Clamps.



Identified with the automotive and trucking industries for more than 20 years, Wittek Noc-Out Hose Clamps have established and maintained a standard of quality that guarantees a uniform perfect seal on all hose connections for busses, tanks, trucks and tractors.

THE STANDARD OF THE INDUSTRY

WITTEK *manufacturing co.*
4305-15 WEST 24TH PLACE, CHICAGO, ILLINOIS

ATA CONVENTION REPORT

First war-time meeting gets sober note of warning from ODT Director that the road ahead is rough; technical sessions stress conservation and manpower needs

THE problems of conservation, maintenance and manpower were the outstanding considerations of the members of the American Trucking Associations, Inc., when they held their first war-time convention at St. Louis in October. Rubber, parts and equipment were objects of concern, but perhaps the deepest concern of the industry was over losing its trained personnel.

The 1,000 members of the industry who attended, came to talk and to listen, to seek help and to give it. There was no depressing gloom, no under-current of defeatism. The atmosphere was one of determination to join hands through national organization and stand shoulder-to-shoulder in meeting the problems of war-time operation.

The high spot of the business meeting was the re-election of Ted V. Rodgers as president to serve his tenth consecutive term. In addition to complimentary resolutions, several inspired by the war developments were passed. They dealt with the 35-mile speed limit, with the industry's equipment needs and the manpower problem. Here they are in brief:

1. "Whereas the trucking industry has been recognized by governmental and private agencies as essential in the conduct of the war and is performing a tremendous task in serving the armed forces and the production lines of war industry, and in order to continue to perform the work it is now doing and will be required to perform, it is the considered opinion of the industry that the present ODT order restricting the maximum speed of over-the-road trucks to 35 miles per hour will seriously hamper the industry's ability to function efficiently; therefore be it resolved that the staff and the Executive Committee be, and they are hereby instructed to continue their efforts to secure a revision of the order to permit a speed in excess of 35 miles an hour that will allow the industry to operate efficiently without waste of transportation capacity, equipment, parts, manpower, time, fuel and rubber.

2. "Whereas the importance of continuing the trucking industry in unimpaired vigor is essential to the nation's war effort, and since the present situation with reference to the supply of motor vehicles and equipment for 1943 indicate a serious shortage of civilian vehicles and equipment, and because it has been necessary for the military forces of the country to requisition a large portion of the present civilian truck pool, while no arrangements have been made to replace the equipment thus taken; therefore, be it resolved that the president of the ATA be authorized and directed promptly to appoint a committee to study the need of the industry in terms of vehicles and equipment for 1943 and to direct that questionnaires be prepared, information compiled and analyzed and the industry's requirements, thus discovered, be presented to the Office of Defense Transportation and to the War Production Board.

3. "Whereas the full utilization of the trucking industry's transportation capacity is being jeopardized by the pirating of employes by other industries and by the loss of men to the armed services of the nation; therefore be it resolved that the staff of the ATA be authorized and directed to cooperate with the several Federal agencies having jurisdiction over questions relating to manpower, and with the Congress, with a view to retaining for the industry, in the prosecution of its essential services to the nation, all the trained manpower possible."

In his president's address Mr. Rodgers dealt with the trucking industry's war problems and stressed the necessity of conserving trucks for vital transport. He pointed out that business as usual is out for the dura tion, and that the problem now is to take account of the impact of the war program on the trucking industry and, at the same time, suggest how the industry can better serve the fight for victory.

"It is difficult to estimate the extent to which our industry has followed the conservation directives of ODT," he said. "Thus far, compliance, for the most part, has been voluntary. From my own contacts, however, I am led to believe there has been a general and honest response, particularly among the well-managed carriers."

Mr. Rodgers pointed out that the activities of the ATA Division of Operations, always important, have been made vital by the war and the critical need for safe and efficient operation. He said that this division has conducted brake schools for fleet mechanics at 30 cities throughout the country, at which the mechanics were given expert instruction. He emphasized in his talk that proper braking is essential now not only from the standpoint of safety, but also in the interest of tire conservation.

Two hundred operators and maintenance men attended the truck maintenance open forum clinic, conducted by the Safety and Operations Section of ATA. The chairman and keynoter was Robin S. Williams, ODT consultant, who announced at

(TURN TO PAGE 142, PLEASE)

FEDERAL TRUCKS ANSWER THE CALL OF "TIMBER-R-R"—AS WOOD BECOMES A VITAL WAR WEAPON

FROM cartridge cases to cargo planes, the use of wood as a weapon of war is growing tremendously in importance. Wood—millions upon millions of feet of it—is now going into the construction of war worker homes, army barracks, war plants, transport ships, troop landing barges, fast torpedo boats, sub-chasers, patrol boats. Boxes, crates and containers—thousands of them—for Army and Navy Ordnance materiel alone will take an estimated billion and a half feet of lumber. Wood *is* vital to Victory—now serves as a worthy substitute for steel and other strategic metal shortages.

So axes are ringing and saws are singing with growing urgency in the timber stands of the Northwest and in the Southland—wherever logs can be "toted" —to serve our War needs. And to make sure that it won't be "too little and too late," big, husky, four and six-wheel Federal Trucks are in there fighting—under the most gruelling kind of punishment trucks were ever built to take—carrying huge loads of massive logs over forest floors, often without benefit of graded roads or even trails.

Federal *balanced truck design* is maintaining a reputation for husky dependability and hardboiled performance among lumbermen who pride themselves on never making an excuse—or taking one! Again we repeat: "Toss the *Tough* Jobs to Federal!"

FEDERAL MOTOR TRUCK COMPANY, DETROIT, MICHIGAN

UNCLE SAM NEEDS EVERY TRUCK OWNER'S PLEDGE TO *"Keep 'em Rolling!"*

Pledged *U.S.* TRUCK CONSERVATION CORPS

● America's trucks—YOUR TRUCKS—must keep working for Victory! Frequent and thorough check-ups and maintenance will help keep trucks on the job—reduce operating costs. Go to any Federal dealer and sign Uncle Sam's pledge to Keep 'em Rolling. Make it *All Out for Victory —Not Time Out for Repairs!*

FEDERAL TRUCKS

Since 1910 . . . Known in Every Country—Sold on Every Continent

PRE-WAR PROFIT CONSERVATION FITS PRESENT

(CONTINUED FROM PAGE 31)

In this area we have a hydraulic hoist. Air from a 180-lb. compressor is piped beneath the floor to a recess, located under the arms of the hoist, near the cylinder, and closed, when not in use, by a hinged, metal cover. We connect our high-pressure lubricating unit directly to the air outlet in the recess, thus avoiding the inconvenience and possible hazard of surface hose.

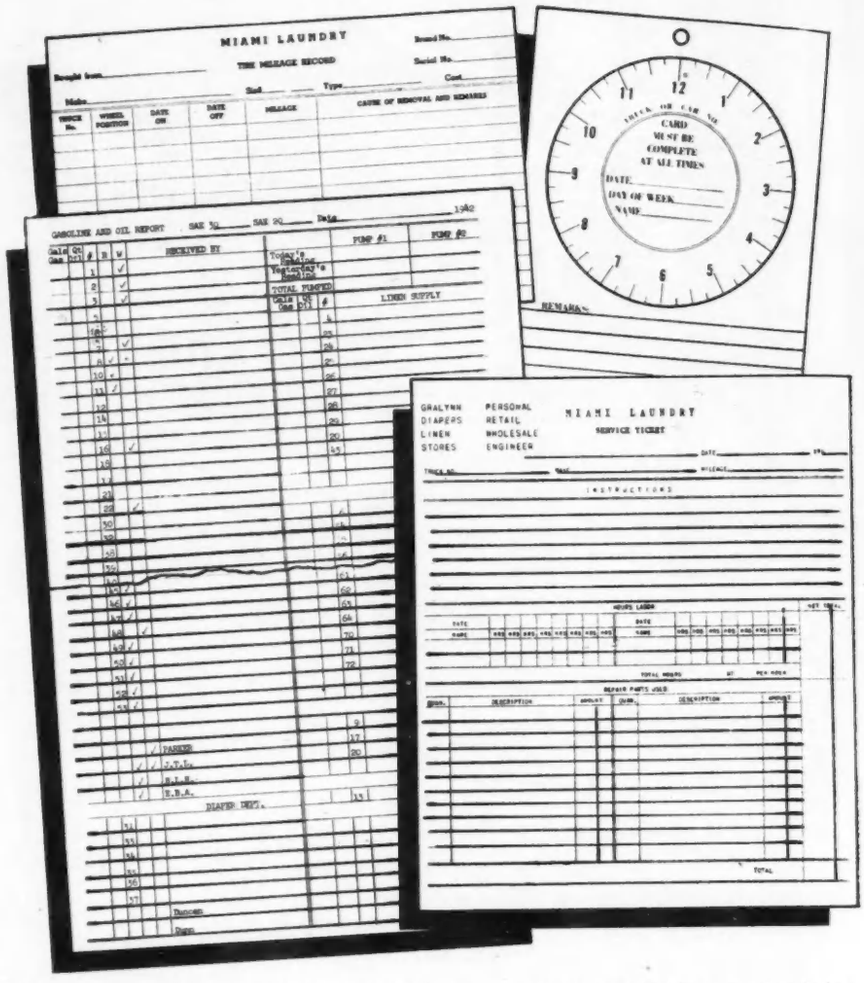
We have a bench grinder, buffer, drill press and a valve refacer mounted on our work bench, which extends from a point just outside the office to the main-entrance door. This arrangement gives anyone working at the bench quick access to the telephone, and almost effortless control over incoming and outgoing vehicles.

Our equipment inventory also includes two battery rechargers, an armature growler and tester, an exhaust gas analyzer, a motor analyzer provided with cylinder-compression gages and an electronic tachometer, a spark-plug cleaner, acetylene welding apparatus, a valve-seat grinder, paint-spraying equipment and a 7-quart oil refiner.

In following out our work schedule we stagger our hours. I come on duty at 5:45 a. m. My two helpers come on duty at 1 p. m., remaining until 10 p. m. Since the last of the trucks is in the garage by 6 p. m., I have an opportunity, before leaving at 4 to 6 o'clock, to specify what is to be done in the case of each unit.

Our preventive-maintenance plan is set up on a 1000-mile, 5000-mile and a seasonal-overhaul basis. On the 1000-mile check-up, lubricant is applied to all chassis lubrication-points in accordance with manufacturer's specifications, tires are thoroughly inspected for any signs of injury or excessive wear, and the crankcase oil is drawn.

Instead of discarding the drained oil and replacing it with new, we refine it. Over a four-year period we have found that by this method we have pared down our cost on this item at least 65 per cent; after taking into consideration the actual depreciation of the equipment used. The cost of the operation, itself, runs only about 8 cents per gallon of oil processed.



The tire record and the gas and oil report in this group are closely watched for unusual variations

The device we employ agitates the oil, to which Fuller's earth has been added in the ratio of 1 to 4, and heats the mixture electrically to a temperature of 400 deg. F. After passing through special filter paper which retains the Fuller's earth and the waste material the latter has collected, as shown in the accompanying illustration, the oil is ready to go back into the crankcase. The process takes anywhere from 22 to 30 minutes, depending on the temperature of the oil when it was drained.

Of course, enough oil must be added to that refined to bring the total up to proper crankcase capacity. Naturally, the added amount varies with the age and condition of the truck.

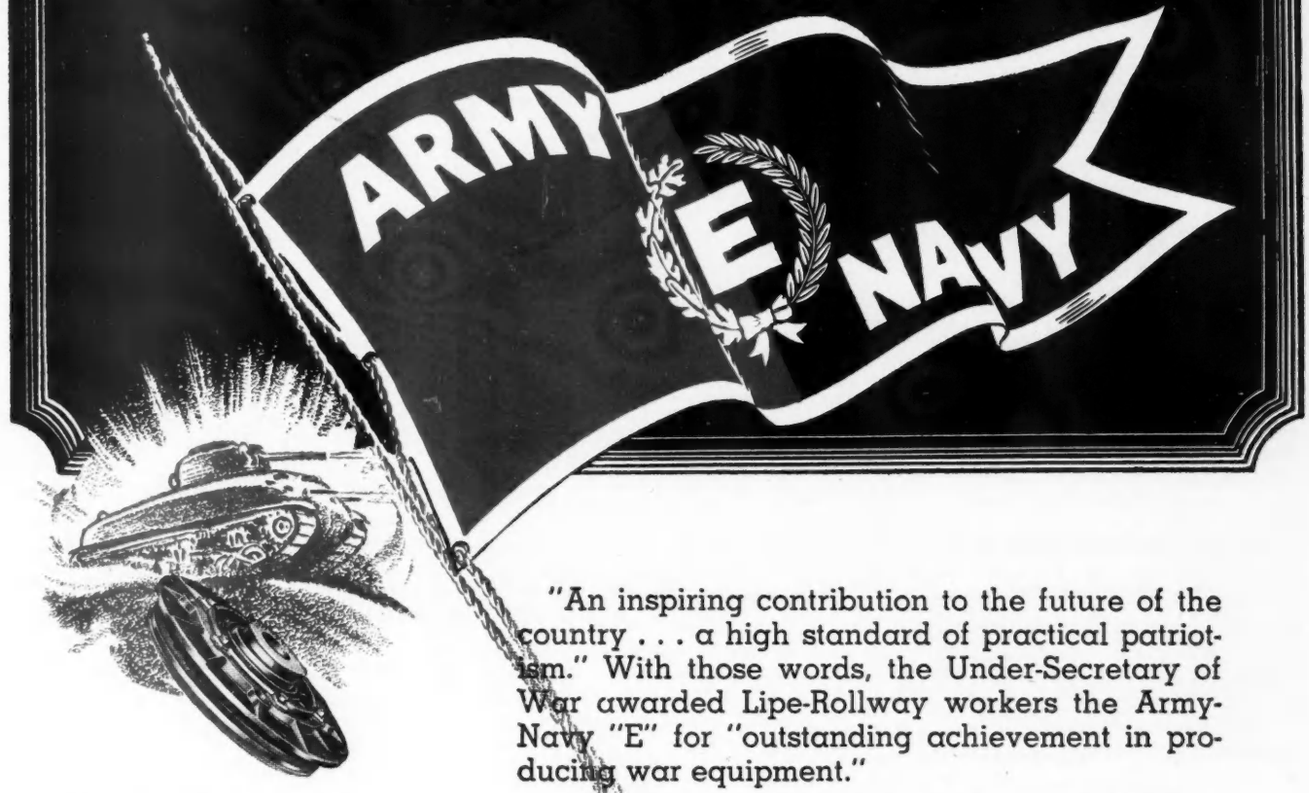
Since trucks on suburban runs reach the 1000-mile point before those on city routes, we service our batteries on a time rather than on a mileage basis. Every two weeks we test our batteries, fill the cells with distilled water and check terminals for loose connections. At the same time, chassis lubricant, thinned down with an equal quantity of cylinder oil, is applied to the terminals in order to prevent corrosion.

On our 5000-mile servicing we check ignition and carburetion, clean spark plugs, check fan belts, test steering gear and front ends, and inspect brakes for equalization and wear. Tires, too, undergo close scrutiny to determine whether or not a switch from one wheel to another is advisable.

The fact that we check these items at the 5000-mile point doesn't mean that they get attention at no other time. It means that they are sure to claim our notice then, if there had

(TURN TO PAGE 72, PLEASE)

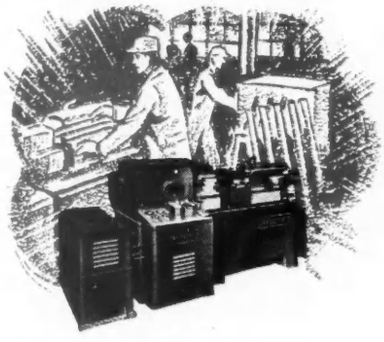
OUTSTANDING ACHIEVEMENT



"An inspiring contribution to the future of the country . . . a high standard of practical patriotism." With those words, the Under-Secretary of War awarded Lipe-Rollway workers the Army-Navy "E" for "outstanding achievement in producing war equipment."

"Outstanding Achievement" is a crowning distinction to Lipe-Rollway employees. For 67 years, their trained skill and brains have been an outstanding aid to invention and industry, and have contributed much to the unbeatable productiveness of America. And their 67 years of "know how" are carefully fostered and improved, passed from master worker to apprentice until it becomes a habit, a tradition, a day-by-day routine that carries on in peace as well as in war . . . *practical patriotism* that never stops trying to do something better, faster, and at lower cost.

★ LIPE Clutches



★ LIPE Lathes

LIPE ROLLWAY CORPORATION

Syracuse, N. Y.

★ ★

PRE-WAR CONSERVATION FITS PRESENT

(CONTINUED FROM PAGE 70)

been no occasion for it before. As a matter of actual practice, while units are being moved around in the garage on and off the wash rack, they are under constant inspection.

Obviously, the limited manpower in our maintenance department makes it impossible for us to keep an elaborate set of records. Those we keep are intended principally to provide the company with accurate cost data on the operation of each fleet unit.

Our inspection record consists of a bound book, having a separate page for each unit. On that page we enter only the vehicle's speedometer reading and the date on which the inspection was made. Time and material for all work done are entered on a service ticket—really, a combination job and cost card. This goes to the main office which draws off the information needed for records kept there, and then is returned for our files.

The "time" items for the service card come from our daily time cards. These bear a 4-in. facsimile of a clock-face, divided into hours and quarter-hours. On this, each man enters in the proper space the work he did and on what vehicle. It's an easy way to keep a time record, and serves the purpose intended.

The greater portion of the firm's volume comes between late autumn and early summer. During the dull period we do our mechanical and body reconditioning. Since our truck fleet is integrated into the company's merchandising setup, painting and lettering, all of which we do ourselves, play an important part in our off-season maintenance program. Last summer, we painted and lettered 31 units—practically half our truck fleet.

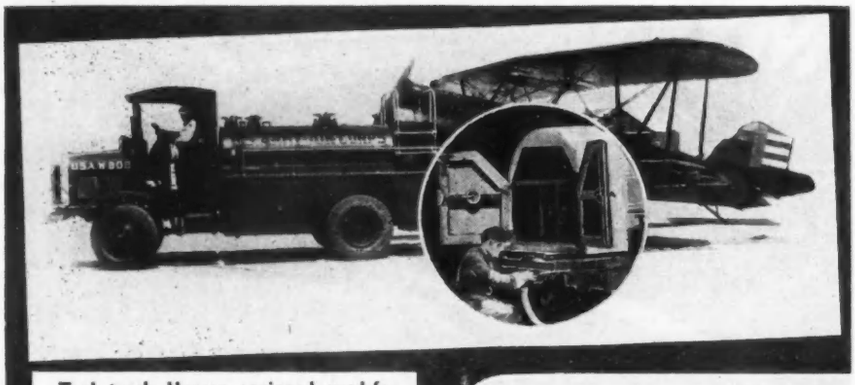
Miami Laundry trucks, except those used for diaper service, are painted a glistening white, suggestive of hospital operating-room cleanliness. Lettering, in distinctive characters, is black. The diaper service trucks, operated by women drivers, are a two-tone job in "baby pink" and "baby blue."

Our painting assignment also includes refinishing the containers used in connection with the diaper service. These containers are covered metal cans in which young America's three-point pants are parked after use. We have only recently completed the repainting of 175 of these cans.

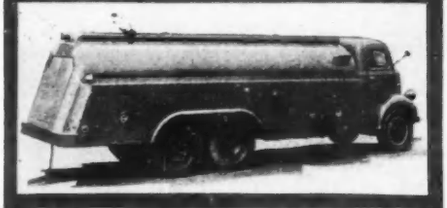
In addition to lettering, which publicizes the firm's name and business, our trucks serve as mechanized billboards to broadcast some message of community or national interest. These messages usually are in the form of slogans, lettered in special script, and changed from time to time. The one which we now are using—"Isn't it great to be an American!"—has brought much favorable comment.

Long ago, we began to take our first lessons in rubber conservation. About eight or nine years back, we started experimenting with recaps. From the experience gained, we set up a system which has given us what we think is maximum tire economy, as far as our delivery problem is concerned.

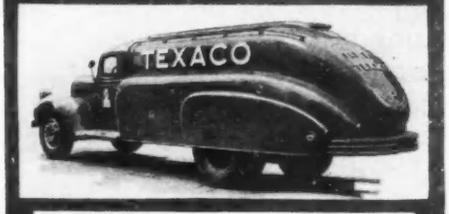
(TURN TO PAGE 74, PLEASE)



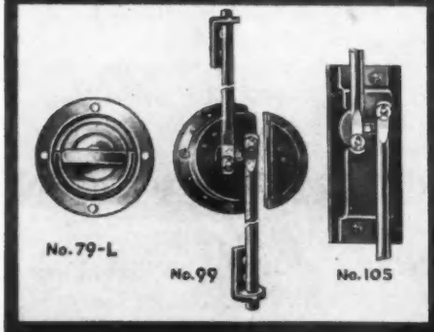
Tank truck, Hansen-equipped, used for delivering fuel to airplanes.



Texaco 1250-gallon refueler fitted with Hansen Locks and Flush Handles.



2000-gallon aircraft refueling unit. Hansen Locks and compact Flush Handles.



Keep them running-
Keep them flying-
with HANSEN

THE stamina for which Hansen Hardware is noted is again demonstrated on gasoline and oil delivery tanks for refueling mechanized units—to "keep 'em flying" and keep them running.

Doors of these Tank units are streamlined with Hansen Flush Handles. They are kept tight shut with Hansen Locks—noted for their simple design and rugged, durable construction.

Leading tank, truck and trailer manufacturers are using Hansen as standard, as it often outlasts the units on which installed.

ASK FOR CATALOG—if you don't already have one—showing the complete Hansen line.

PRODUCTS ILLUSTRATED

No. 79-L FLUSH HANDLE. Fits flush with door. Increases load space. Easy to apply.

No. 99 ROTARY DOOR LOCK. Draws doors solidly together, making them rattleproof.

No. 105 DOOR LOCK. Compact. Strong. Rods cut to length. Holds doors tight-shut.

A. L. HANSEN MFG. CO.
5047 Ravenswood Ave.
CHICAGO, ILL.

HANSEN
THE HARDWARE FOR HARD WEAR

AVOID WINTER ENGINE TROUBLES

RISLONE is available in five, fifteen, thirty and fifty gallon drums for shop use . . . in Lithographed sealed cans for motorists and garages.

Use RISLONE in your crankcase oil

● Winter hazards are minimized if you add RISLONE right in the crankcase with your regular oil. The oil is kept free-flowing at all times even in sub-zero temperatures. RISLONE facilitates quick starting, and full lubrication of all moving parts is assured immediately.

Engine life is prolonged, parts do not need replacement and critical metals required for war goods are conserved.

RISLONE prevents gums from forming in ring slots, guides, and on valve stems . . . sticky valves are freed. Compression and power are restored,—compression is equalized in all cylinders for peak performance, consumption of oil and fuel reduced,—and a smoother, quieter operating engine assured . . . All this means *power to keep transportation on the move at minimum costs!*

Prepare NOW for Winter

Every operator of trucks, busses, delivery vehicles of all kinds can join in the Nation's effort to keep his power plants in perfect condition, fit for combating the rigors of the winter months, vital months in our War program.

RISLONE is a combination of chemicals designed to ABSORB all types of motor gums. RISLONE has been used successfully for many years in millions of engines by motorists, fleet operators, stationary gas and diesel engine operators, in the marine engine field and in mechanized military equipment—and it is used for the safe break-in of aircraft motors, too.

"Tune-up" All Engines

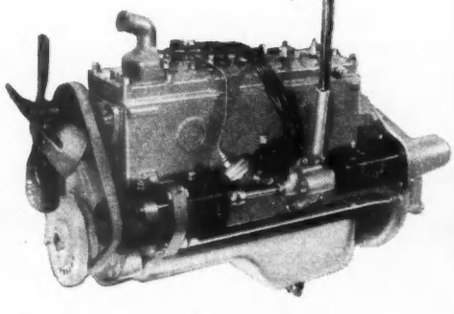
In our illustrated 64-page book "Engine Performance" the time-proven and tested Shaler "Tune-up" procedure is fully described. A copy will be forwarded free on request. It's time to act NOW. RISLONE is made by the makers of KARBOUT for quick motor clean-out, and the world-famous Shaler "Hot Patch" Vulcanized Tube Repairs,—THE SHALER COMPANY, Waupun, Wisconsin, and Toronto, Canada.

Keep War Materials on the Move!

Safeguard Our National Transportation System!

BEFORE WINTER COMES "TUNE-UP" EVERY ENGINE

A KARBOUT-RISLONE "Tune-up" improves the performance of all internal combustion engines . . . First a quick 15-minute Clean-out by introducing KARBOUT through the intake manifold with engine running to free valves, chase gums and release carbon. Then to perpetuate the improved performance, to dissolve and prevent further gum formations add RISLONE, the oil alloy, to the oil right in the crankcase in the proportion of one quart to three quarts of oil.



PRE-WAR CONSERVATION FITS PRESENT

(CONTINUED FROM PAGE 72)

For one thing, we fixed as our objective a tire cost of $1 per 1000 miles. As an average, over a period of several years, we have kept our cost down to that figure, or less.

First, we classified our routes into three general groups — interurban, traffic and suburban. On trucks in inter-city service, such as the Fort Lauderdale run, we put new first-quality tires. Units operating in congested traffic areas we equipped with heavy-duty, stop-and-start tires. As soon as new shoes wore smooth, they were recapped and mounted on trucks serving residential sections. As regards tire wear, we consider such routes to be our easiest.

Generally, tires travel 15,000 to 20,000 strenuous miles, when they are removed. Recapped and assigned to an easier run, they usually duplicate their original mileage. If they have suffered no accident which weakens their carcasses, during the 30,000 to 40,000 miles they were in service, they receive a second recap which makes them good for still another 15,000 to 20,000 miles. Therefore, out of an investment of $40 to $45 in one new tire and two recaps we get 45,000 to 60,000 miles of wear. Incidentally, about 50 per cent of our tires will take a second recapping.

As an experiment, we have given tires a third recapping. From this we obtained 5000 to 10,000 additional miles. Under normal conditions we would regard the third recap as unprofitable. By the time a tire has traveled 45,000 miles or more, frictional heat and an accumulation of small bruises generally weaken the sidewalls to the point where they are not too dependable. If a blowout caused no more damage than the ruin of a perfectly good tube, the investment in a third recap would be a poor one.

The current rubber shortage, however, may cause us to recanvass the possibilities of a third-time recap. Route and speed adjustments, resulting from cooperation with ODT's conservation program, and the employment of carcass reinforcements may make the use of a third recap more practical than it once was.

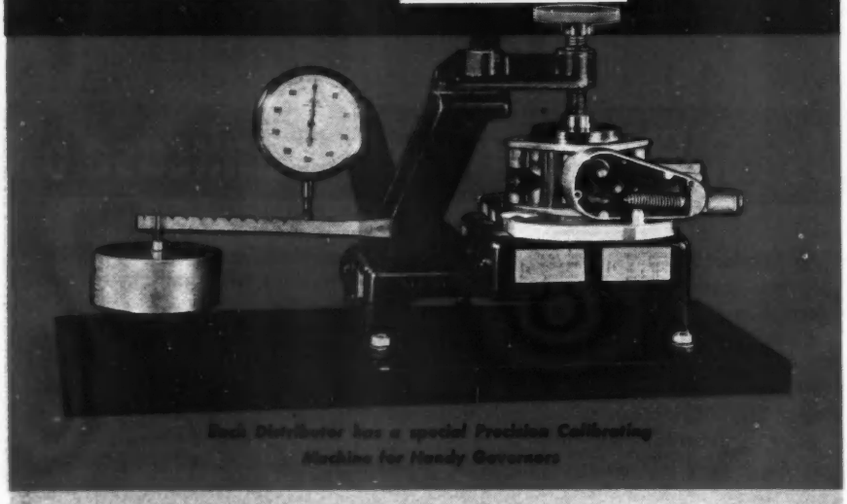
We have used reliners but they show a tendency to chafe the tubes. However, if we come to the point where it is necessary to recap tires for the third time in order to keep fleet units on the road, we may have to reinforce sidewalls with reliners. On our slowest runs they may work out.

Our experience with inside patches and boots has been satisfactory but we avoid, if possible, using the latter in front-wheel tires. As a matter of routine we plug nail holes in shoes with nail hole patches. Except for an occasional emergency repair made outside, all tire work is done here in the shop. Not only does this policy save us money, but we are more certain that what is done is well done.

In our judgment, the tire economy we have managed to obtained by the use of recaps is largely due to several favoring factors in our operation. These factors include governed speed. driver education, maintenance of proper air pressures, what actually amounts to an almost daily tire-in-

(TURN TO PAGE 76, PLEASE)

DON'T Let a Sluggish Governor WASTE Fuel



Each Distributor has a special Precision Calibrating Machine for Handy Governors

Gum and carbon, the products of combustion, inevitably form around bearings, throttle shaft, stabilizer piston and cylinder of the velocity-type automotive governor. Quite naturally, this tends to produce sluggish governor action and to destroy the close balance of forces on which an efficient governor depends.

This results in loss of responsiveness, slower governor opening on a grade and tardy shut-off when the load is removed. In practical terms, a sluggish governor wastes fuel, and in times like these such waste cannot be tolerated.

Overhaul and clean your governors as frequently as you do your carburetors. They both are subjected to the same carbon and gum conditions.

See your Authorized Handy Governor Distributor for this complete reconditioning and calibration service.

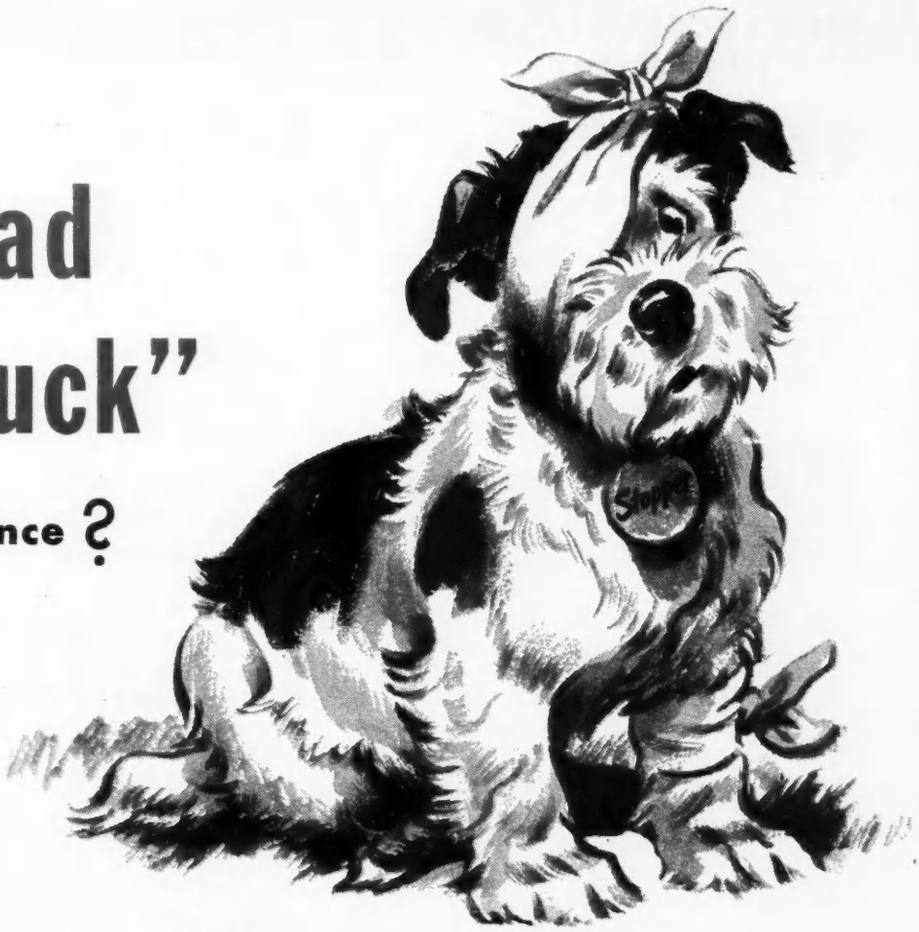
KING-SEELEY CORPORATION • Ann Arbor, Michigan

HANDY *Visible Action* GOVERNOR

World's Largest Manufacturers of Automotive Governors

Ever Had "Tough Luck"

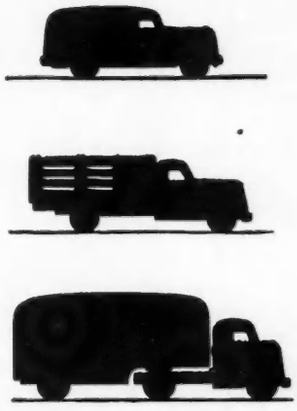
on brake maintenance?



HERE'S HELP on an important wartime job — keeping brakes in top-notch condition to protect tires, drums and trucks.

American Brakeblok offers three specialized types of heavy-duty brake linings and a free Advisory Service to adapt these types to your units.

This Advisory Service and American Brakeblok's three types of heavy-duty brake linings have proven effective in reducing brake maintenance work and costs — in preventing unexpected teardowns and failures that are always unwelcome. Ask an American Brakeblok representative about our free Brake Lining Advisory Service today.



1 American Brakeblok "Regular" Brake Lining for manually operated braking systems.

2 American Brakeblok "1000 Series" Brake Lining for vacuum-booster braking systems.

3 American Brakeblok "2000 Series" and Thick Blocks for airbrake equipment.

NAPA

Master stocks in 37 NAPA Warehouses. Jobbers everywhere give prompt service on American Brakeblok Brake Linings.

American Brakeblok BRAKE LINING

THE AMERICAN BRAKE SHOE & FOUNDRY COMPANY

AMERICAN BRAKEBLOK DIVISION, DETROIT, MICHIGAN

PRE-WAR CONSERVATION FITS PRESENT

(CONTINUED FROM PAGE 74)

spection and an experience-gained technique in the employment of recaps.

For instance, we do not run original and recap rubber on the same vehicle at the same time. Tires of either kind are switched on the basis of wear instead of at a pre-determined mileage point. Wheel-balancing work is ordered because it appears to be needed rather than as a matter of fixed policy. We run our better shoes, if there is a choice, on rear wheels instead of in front.

We realize, of course, that part, perhaps all, of these practices may seem unorthodox to some fleet owners but they have proven satisfactory in our own operation. Take, for example, our policy of putting better tires in the rear. After all, that is where weight and traction strains come. The only point we see in favoring front wheels is to provide a greater safety margin for high-speed driving. Since our trucks are governed against excessive speed we feel justified in placing tires where we think they will be most useful.

Having only three trucks equipped with dual tires, we have no special routine to care for these, except keeping them matched up for wear. We check on this item as a part of our 1000-mile inspection.

Tire pressures are checked every Saturday night in connection with our weekly gas-up, to be mentioned later. The pressures which give us the best results are as follows: 600/16, 35 lbs.; 700/16 and 750/16, 40 lbs. which is 5 lbs. over manufacturer's recommendations; 600/20 and 650/20, 50 lbs. Since the checking of pressures is practically automatic, we make no record of it. We do, however, keep a very accurate record of the mileage we get from every tire we buy.

For this purpose we use a 5 in. x 8 in. manila card for each tire. At the top, this card gives the general history of the tire—from whom purchased, its manufacture, size, type, identifying marks and cost. In spaces below the heading appear the shoe's performance record, while it remains on the truck on which it was originally mounted. If the tire is shifted to another unit, another card is headed up and both are cross-referenced.

In effect for several years, the company's gasoline-saving setup ties in with its over-all plan for economical fleet operation. In dealing with this part of the program we had to take into consideration the needs of driver-salesmen who have a business-getting job to do.

The city of Miami, in which more than 50 per cent of our fleet operates, covers nearly 50 square miles and consists, in part of separate communities laced together by a network of "through" and "stop" streets. Some intersections are controlled by signal lights and others by pavement "stop" signs. To work efficiently under these traffic conditions drivers must have reasonable operating flexibility.

Therefore, we aimed our fuel-saving efforts at the elimination of waste rather than at the lesser economies to be secured by the adjustment of

(TURN TO PAGE 78, PLEASE)

STOPS TIRE MUTILATION

One Puncture May Mean Loss of Irreplaceable Tube... or Even a Life

You're taking a big gamble in driving trucks without AIRLOX. A puncture today is serious business. Your trucks may be on their last set of tires. It might be years before you can get more. One puncture usually ruins a tube beyond repair. So why take the chance of putting your trucks out of operation and endangering the lives of drivers. AIRLOX is cheap tire and life insurance. It seals puncture as the truck is being driven. One treatment effective for years in all temperatures. Arrange to protect all the tires on your trucks with AIRLOX. If you are unable to obtain AIRLOX from your regular automotive jobber, order direct.

IVANO, INC., 129 EAST 21st ST. CHICAGO, U. S. A.

IVANO
AIRLOX
SEALS PUNCTURES INSTANTLY
-WHILE YOU RIDE!

INSIST ON AIRLOX

There are many puncture-sealing compounds on the market. None can compare with AIRLOX. Besides being more effective, AIRLOX does not contain sodium chloride or any other ingredient injurious to rubber or valve fittings.

More than a MILLION MILES and still in there "Fighting"

This Waukesha-powered FWD truck, owned by Clintonville Transfer Line, Inc., Clintonville, Wis., has a service record of more than a million miles. Driver Lewis Schall smiles with satisfaction as he checks the Waukesha Engine's low oil consumption.

★ Too old for active service—not *this* FWD truck! Sure, it's got more than a million miles on it. And what if it was built back in 1933? It's got the same type of engine it started out with—Waukesha Marathon Six. The 6-B Series they call it.

If there were any weak spots in that Waukesha Six design, they'd have showed up long before now.

This truck got better than 400,000 miles from *each* of the first two engines before replacing 'em. That's at least 2,100,000,000 revolutions *apiece*—just about the equivalent of 20,000 hours' continuous service from each engine. And now, with its third Waukesha Engine, it just keeps rolling along . . . .

In a war like this, every truck that will run is very much a part of war transportation. So this truck is still in there fighting—hauling engines from Waukesha to Clintonville, Wis.—new modern Waukesha Engines *to power the very latest type of war vehicles.*

For Automotive, Industrial and Stationary Power, Waukesha Gasoline and Oil Engines range from 5 hp. to over 300 hp. *Get Bulletin 1079.*

WAUKESHA MOTOR COMPANY, WAUKESHA, WIS.
NEW YORK • TULSA • LOS ANGELES

MORE POWER FOR VICTORY

WAUKESHA ENGINES

PRE-WAR CONSERVATION FITS PRESENT

(CONTINUED FROM PAGE 76)

carburetors to over-lean mixtures and of governors to speeds we found to be impractical. For the best results, all things considered, we had been setting our governors at 40 m.p.h. on inter-city runs and at 35 m.p.h. on local routes. When gas rationing took effect, we cut the speed on inter-urban runs to 35 m.p.h.

The best direction-finder we have for locating fuel waste is our gasoline-consumption record. This consists of two forms—one daily and the other weekly. Made in duplicate, one copy for the main office and one for the garage, the daily record groups fleet-units by departments, and includes entries of oil, as well as gasoline, put into each vehicle. It also provides for notations on daily gasoline-pump readings. The weekly form gives for each unit the gallonage used during the week, the current speedometer reading, miles traveled and per-gallon average.

Both reports are printed with truck numbers in consecutive order on separate lines. Therefore, it is necessary only to enter on the proper line the amount of gasoline pumped to each vehicle. The daily form provides for the entry of oil put into the crankcase of any unit to be made on the same line with the fuel.

Each Saturday night all units are gassed up to full tank capacity. The total quantity of gasoline pumped to any unit during the week, plus the amount required to fill up its tank Saturday night, is, of course, the vehicle's weekly consumption.

This easy-to-keep record enables us at once to spot over-consumption of fuel by any unit. We then can check up to ascertain whether the fault lies with the vehicle or its operator. A test with the exhaust gas analyzer will indicate whether or not the trouble can be remedied by mechanical corrections. If we find that the fault lies with the operator rather than the truck, we report the case to the route supervisor under whom the salesman works.

The Miami Laundry's general policy requires a close coordination of effort on the part of its entire personnel. As it relates to fleet operation, an important point in this policy is a periodic driver education meeting. Held monthly, this get-together of drivers, their supervisors, the route superintendent and the fleet superintendent has for its purpose practical instruction in the conservation of gasoline and tires, and in the avoidance of accidents.

We try to point up these meetings by practical demonstrations. For example, we show with a carburetor how the racing of a motor, when a truck is started, wastes gasoline. Long ago, we dubbed operators guilty of this practice "professional foot patters." The name stuck and offenders come in for so much good-natured kidding on the part of their associates that the trouble has been practically eliminated.

We introduce tires which show definite signs of abuse—bruises, curb rubs or glass cuts—and explain how operating carelessness shortens tire life. We stress the fact that the loss of productive time because of tire failures cost drivers money.

(TURN TO PAGE 80, PLEASE)

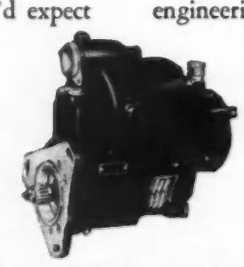
An Extra Mile of Ceiling

ON THE fighting fronts are thousands of war planes whose engines are fired by dependable energy from American Bosch aviation magnetos—wizards of electrical efficiency supplying the *right* high-tension spark at the *right* split-second of time, thousands of times per minute, hour after hour.

That's no more than you'd expect of fine magnetos. But American Bosch has not rested on past performance. Other factors equal, the plane *on top* is the plane that wins the fight. So up go ceilings, and American Bosch engineering keeps pace.

Today American Bosch magnetos perform unfailingly *several thousand feet higher* than ever before required. As planes fly still higher, American Bosch magnetos will be ready for them—are ready today.

For American Bosch pioneering, engineering "know-how" and New England craftsmanship are on the production warpath, keeping faith with American aviation.



★

American Bosch Corporation, Springfield, Massachusetts

Craftsmen in the New England Tradition

AMERICAN BOSCH

AVIATION & AUTOMOTIVE ELECTRICAL PRODUCTS . . . FUEL INJECTION EQUIPMENT

MOTORS RUNNING OVERTIME

with Fewer Breakdowns

. . . thanks to FRAM!

FLEET OWNERS whose trucks are "taking a licking" under today's tough operating conditions report amazing conservation results from Frams. "Wear found to be 3 and 4 times more on engines *not* equipped with Frams," says a West Coast operator. "Frams cut engine wear in half," a bus operator writes. "200,000 miles and more before reboring," reports a transportation company. These are just a few of many letters, based on actual shop records, which we've received.

How to Make
Your Motors Last Longer

Take a tip from the experience of other fleet owners. Use this proved method to cut down time-consuming overhauls, avoid excessive wear on hard-to-get replacement parts, conserve motors and oil. First, install Frams on your trucks. Second, replace dirty cartridges with genuine, *chemically*-treated Fram Replacement Cartridges, now made for most makes and types of filters. They do what no non-chemical filter can: not only filter out sludge, dust, grit, and carbon, but also impede formation of acids and other harmful corrosives. Get the complete story. Call your Fram Jobber today.

FRAM CORPORATION

Providence, R. I.—Canadian Distributor, J. C. Adams Co., Ltd., Toronto, Ontario.

◆

if your Fleet has no Filters . . .

install Frams. Fram Oil & Motor Cleaners have a *patented*, chemically-treated, "filtermasse" which filters out dust and abrasives and also impedes formation of acids, other harmful corrosives which eat away motor parts.

if your Fleet Has Filters . . .

Check and be *sure* they are adequate for today's operating conditions. Step up performance by equipping with genuine, *chemically*-treated Fram Replacement Cartridges made to fit most makes and types of filters.

HOW'S YOUR **OIL FILTER?**

The Dip-Stick Tells The Story

Prevent "BATTERY BLACKOUT"
WITH GLOBE SPINNING POWER

GLOBE BATTERIES ARE BUILT FOR WARTIME REPLACEMENT SERVICE

★ Wartime replacement service is the toughest job any heavy-duty battery ever had.

Old Man Winter, especially when gas rationing necessitates *extra* idle hours, is as menacing a battery-foe as loose or corroded terminals, failure to maintain proper water level, or excessive drain.

There is no greater assurance of dependable battery performance than GLOBE SPINNING POWER — the battery built for wartime replacement service.

GLOBE-UNION INC.
Milwaukee, Wis.

CINCINNATI
ATLANTA • MEMPHIS
LOS ANGELES
BOSTON • SEATTLE
PHILADELPHIA
DALLAS • KANSAS CITY
MINNEAPOLIS

CJ-1242

GLOBE
SPINNING POWER BATTERIES

PRE-WAR CONSERVATION FITS PRESENT

(CONTINUED FROM PAGE 78)

In order to impress on driver-salesmen the proper relationship between burned gasoline and the business results it is intended to produce, the company offers periodic prizes for the best increases in dollar-volume per traveled-mile made by individual route men over their own previous records.

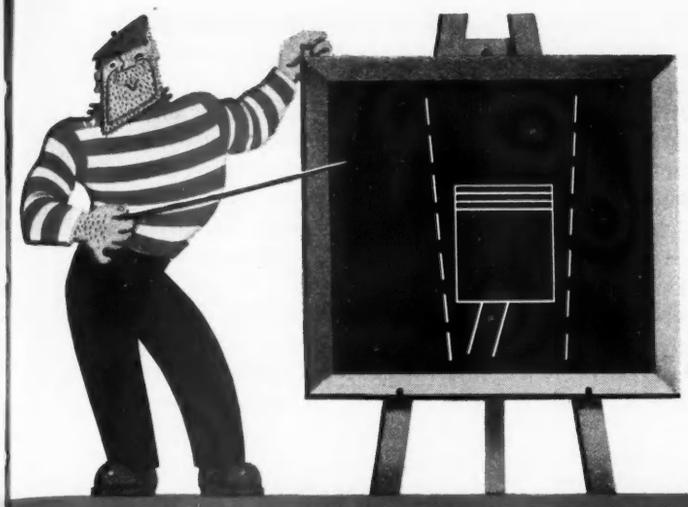
One plan, which has proved effective in cutting down accidents, is a monthly and a semi-annual cash award to eligible drivers. Each month the firm posts $5 for every route man. Those who go through the month without having an accident of any kind receive the cash and gold stars opposite their names on the accident-prevention score board. Blue stars on the board indicate men having unpreventable accidents causing damage in the amount of $10 or less. A red star signifies an accident in excess of that sum or one which was preventable.

Money forfeited each month by blue or red star drivers goes into a pool which is divided semi-annually between the men who have earned gold stars for six consecutive months. The color of the stars on the score board seems more important to driver-personnel than the money involved. And simple as the plan is, during the three years it has been in effect it has reduced the laundry's accident total at least 50 per cent.

The company has no hard-and-fast rule against the idling of motors, while stops are being made. However, this subject and the over-use of the choke have been discussed at driver-education meetings many times, so the route men know pretty well what is expected of them.

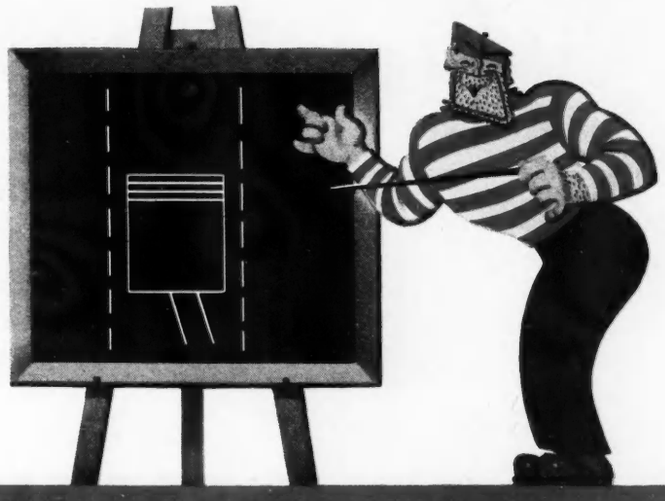
In the last analysis, our best safeguard against fuel waste is the fact that gasoline, as well as other items of fleet operation, are charged directly to the several departments. This system of bookkeeping makes route supervisors and their personnel decidedly mileage-conscious. Whenever the record shows an unexplained over-consumption of gasoline by any route man, it is in the interest of his supervisor to find the cause.

(TURN TO PAGE 82, PLEASE)



FROM EXTREMELY TAPERED CYLINDERS...

...TO REBORED OR RESLEEVED CYLINDERS



STEEL-VENT IS THE RIGHT REPLACEMENT RING

● Hastings Steel-Vent is engineered specifically for replacement.

And it's designed to meet any replacement condition, in any motor, from rebores or resleeves to extreme tapers.

Steel-Vent's extreme flexibility plus high unit pressure enable it to give maximum performance even in badly tapered cylinders. Yet its low total tension gives a free-running piston in rebored or resleeved jobs.

For every replacement, you can depend on Steel-Vent. It's the right ring for any job. And you will find a Steel-Vent Engineered Set available for most cars, trucks and buses.

HASTINGS MANUFACTURING COMPANY, HASTINGS, MICHIGAN

Hastings Mfg. of Canada, Ltd., Toronto

PISTON RINGS • PISTON EXPANDERS • VALV-RINGS

HASTINGS

STEEL-VENT PISTON RINGS

U. S. Patent Nos. 2,148,997, 2,173,419

Stop Oil-Pumping • Check Cylinder Wear

PRE-WAR CONSERVATION FITS PRESENT

(CONTINUED FROM PAGE 80)

This record-controlled vigilance on the part of firm executives serves as a check against any unauthorized use of gasoline, except for legitimate business purposes.

We have little wastage at the pumps. For one thing, we do not fill vehicle tanks clear to top, except on our week-end gas-up, when we have ample time to do it without danger of spilling over. Pumps are spotted just inside the main entrance on a concrete island which divides the 10 ft. by 24 ft. doorway into "In" and "Out" traffic lanes. Here the lighting, both natural and artificial, is good enough so that we can see when tanks are likely to run over.

For years, a large portion of the fuel distributed in this area has been considerably under top grade. Because temperatures seldom get below 70 deg., we have had reasonably good results in the use of low-grade gasoline, and never have deemed it worthwhile to use additives.

Since shortages of rubber and gasoline have developed, in cooperation with ODT Miami Laundry has made a number of mile-saving adjustments on its route schedules. Formerly, the company had two ½-ton trucks operating in Hollywood, and one 1½-ton truck at Fort Lauderdale. These were served by a 1½-ton job, used as a relay. This truck made three round trips per day through Hollywood to Lauderdale, a one-way distance of 30 miles.

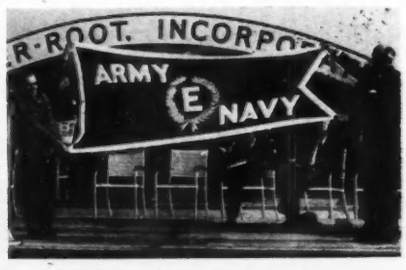
During the winter, these trucks traveled a weekly total of over 2000 miles. The summer closing of certain tourist camps, hotels and apartment houses cut the off-season mileage to approximately half that amount.

By dividing this territory into three sections, each of which now gets semi-weekly instead of daily service, the firm has been able to reduce the weekly mileage in this area to about 600 miles.

An extension of the semi-weekly service plan to Miami Beach, Coral Gables and Miami proper enabled the firm to halve the number of units in use in these areas, and to effect mileage economies comparable to those on the Hollywood-Fort Lauderdale runs. Of course, the cooperation of order clerks in the laundry's main office and of route men was an essential factor in getting for us customer-acceptance of our revised pick-up and delivery schedules. When our reasons for making the changes were explained, most of the firm's patrons proved willing to accept them graciously.

END

(Please resume your reading on P. 32)



Colonel Conrad E. Snow, Signal Corps, USA, and Graham H. Anthony, president of Veeder-Root Inc., Hartford, Conn., hold aloft the Army-Navy "E" burgee, presented to Veeder-Root for high achievement in the production of war material. Individual "E" badges were presented to all Veeder-Root employees.

KEEP 'EM ROLLING

with

BLOOD BROTHERS

UNIVERSAL JOINTS

Whatever your requirements, if your problem is to transmit power at an angle, our field and factory experience of more than 30 years is at your command. Our Engineering Department will gladly submit quotations covering your requirements.

BLOOD BROTHERS MACHINE COMPANY
Division of Standard Steel Spring Company
ALLEGAN, MICHIGAN

Backed by over 30 years' Factory and Field Experience

SPECIFY

Blood Brothers

UNIVERSAL JOINTS

FOR RELIABILITY AND ENGINEERING EXCELLENCE

DUGAN DIGS DEEP INTO PARTS SALVAGE

(CONTINUED FROM PAGE 27)

new ones. When rubber shackle bushings become worn, we build these up by wrapping the bushings with friction tape. This method of repair enables us to get more use from these bushings.

Engine and Transmission

We are salvaging cracked cylinder heads by welding. After we have welded the head, we mount it in a jig on the lathe and then machine the head until it is true. In the past, we found that when a head was welded but not trued-up, it would invariably crack again at the weld after it had been tightened down a few times. Since we have been machining the heads after welding, we have not had a single head break at the weld. Manifolds and engine blocks which are cracked or damaged, we repair by welding or brazing. Engine blocks which have a hole punched in them, we repair by welding a plate over the damaged part.

When pistons are removed at overhauls, we save them and use them in another engine having the same oversize as the piston removed.

Water pump and starter armature shafts, which are sworn, are built up by welding, and then the shaft is machined to proper size. The starter shafts are turned down to where they are a little over the original size, then oversize bushings are used. This allows the shaft to be turned down once again when it becomes worn.

Fuel pumps which have worn housings due to the wear of the rod arm, we reclaim by inserting two brass bushings in the pump housing. This saves renewing the entire pump housing. When the arm of the fuel pump becomes worn on the end which contacts the cam, we build up the end of the arm by welding, then grind to size and temper.

We are rewrapping generator and starter field coils, which in the past we discarded. First we test the coils for any open breaks, if a break shows up the coil is discarded. However, if it shows no breaks we rewind the coils with cotton tape and then shellac them.

Starter housings, bell housings and transmission cases are all reclaimed by welding and brazing. Where the bearing surface at the rear end of the transmission case becomes worn, we repair it by brazing and then machine to proper size.

Worn clutch throw-out sleeves are filled by brazing and then ground flat. Clutch throw-out shafts are built up by welding and then machined to size.

When an engine support pad pin becomes worn we reclaim it by building up the threaded end of the pin by welding. Then we machine it to the proper size and rethread.

We are making new distributor shafts out of cold rolled steel, salvaged from discarded parts.

On camshafts, where the fuel pump arm caused excessive wear on the cam, we electric weld the cam, then turn it down, case-harden and, finally, grind to size.

When the teeth on the flywheel ring-gear become worn or chipped,

(TURN TO PAGE 88, PLEASE)

When the FLEET'S IN
TUNE UP WITH NIEHOFF APPROVED PRODUCTS
★★ CARE WILL SAVE YOUR TRUCK
Between hauls — replace faulty ignition parts with Niehoff Approved Quality Products and keep your trucks geared to the strain of War Time loads and running schedules.
Frequent, periodical inspection, with Niehoff Precision Testing Instruments and replacements where necessary, will assure improved motor performance, conserve gas and oil and eliminate time-out for highway electrical repairs.
A complete line of Niehoff Approved Quality Replacement Parts and Tune-Up Equipment are available through a national network of Niehoff Jobbers.
Write today for literature and Tune-Up Bulletin No. 9, which contains timely and pertinent facts about distributor points. Every mechanic should have this interesting treatise.
C. E. NIEHOFF & CO.
4925 Lawrence Ave., Chicago, Ill.
Branch: 1342 S. Flower St., Los Angeles, Calif.
TAKE OFF with NIEHOFF TODAY
NIEHOFF
"THROW YOUR SCRAP INTO THE FIGHT"

(CONTINUED FROM PAGE 87)
instead of renewing the gear as we did in the past, we are now removing the ring-gear and reversing it on the flywheel. Then we dress up the opposite end of the teeth, using a small hand emery wheel. This method requires a little more time to do than renewing a ring-gear, but it does save critical and hard to get material.

Steering and Chassis

We recondition worn tie-rod ends by brazing with brass. The ball pins are built up by welding, then ground to size and case-hardened. Steering drop arms, which become worn at the ball pin, are built up by welding. then ground to size and hardened. Worn drag-link ends are brazed with brass and then bored out to size.

Steering cross shafts are reclaimed by grinding the shaft down and installing new bushings. The bushings are reamed to size and then pressed on the shaft. When the sector-pins of a steering cross shaft become worn we knock them out, turn them one-quarter of a turn and then drive them back in. This brings a new section of the pin into contact with the steering gear worm, and makes the steering at this point tight again.

Cracked steering gear housings are required by brazing with brass.

Worn universal-joint flanges are repaired by brazing and then turning to size.

Broken bumpers are repaired by welding, and the weld is further reinforced by welding a piece of metal on the back of the bumper.

We repair all damaged radiator grilles by welding in new strips, or sections. All damaged grille strips are saved and used to repair other grilles. Damaged radiator cores are repaired wherever possible. If they cannot be repaired, we salvage the upper and lower tanks and use them on a good core which has damaged tanks.

When brake drums become too thin for safe operation, we reclaim them by making one good one from two worn ones. First we mount the drum in the lathe and turn down the outside flange until it is smooth, then the inside face of the flange is turned down until all score marks have been removed. The flange is then cut off the drum. A slot is cut in the flange to facilitate inserting it into another worn drum. The flange is then inserted into a worn drum, and fastened in place with 16 rivets. The repaired drum is then mounted on the lathe and the inside face is turned to its original diameter.

Even though the price of a new part is sometimes less than our cost to salvage a worn or damaged part, we find it advisable to do so because of the delay in getting certain parts. This oftentimes means tying up a truck until the new part is received. However, we are reclaiming many parts at less than the price of new ones. We are making an intensive effort, by salvaging parts, to assure ourselves of being able to keep our fleet operating for the duration of the war. At the same time, we are also helping to save critical materials which can be used for the war effort.

END

(Please resume your reading on P. 28)

MAINTENANCE
keeps them on the move
So important to the battle front is the mighty bomber, that over a dozen pairs of expert hands are needed to keep it in top-notch flying form.
And hardly less vital is the motor vehicle here at home, for it holds an essential transportation job. Careful and thorough maintenance is the surest way to keep it on the road. You can depend on Ferodo Brake Linings to end brake maintenance problems—and add many valuable miles to tire life as well.
Ferodo for Road Safety
FERODO
BRAKE LININGS
FERODO & ASBESTOS, INCORPORATED, NEW BRUNSWICK, N. J.

WAKE UP LAZY HORSEPOWER!

Summer Starting IN WINTER WEATHER WITH *Casite*

● Fleet maintenance men everywhere appreciate Casite's quick winter starting aid. With Casite in the crankcase—they've found that cold, grumpy motors snap quickly to life at the first touch of the starter button. Casite *guarantees* easy winter starting—or double your money back.

Casite's oil-carrying ability speeds lubrication to close tolerance parts, prevents undue wear during the low-lubrication cold starting period.

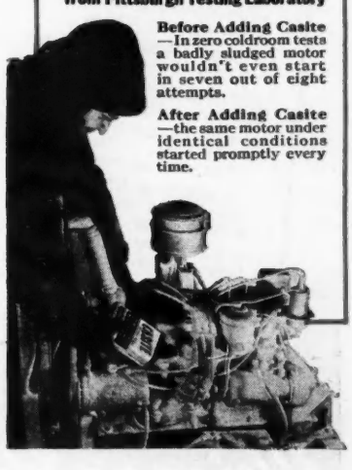
You'll find every engine in the fleet giving a better performance after Casite cleans out the power-destroying sludge and gum—and don't forget, a clean, well-lubricated motor lasts longer . . . goes farther on a gallon of gas.

For quick winter starting, longer engine life and better performance, use Casite.

HERE'S PROOF!
from Pittsburgh Testing Laboratory

Before Adding Casite—In zero coldroom tests a badly sludged motor wouldn't even start in seven out of eight attempts.

After Adding Casite—the same motor under identical conditions started promptly every time.



For the duration, this pint bottle is replacing pint cans

THE CASITE CORPORATION • HASTINGS, MICHIGAN

CASITE

CLEANS OUT MOTORS
KEEPS MOTORS CLEAN

GUARANTEED WINTER STARTING OR DOUBLE YOUR MONEY BACK... *Ask your jobber for details!*

PUT THE HEAT ON COOLING

(CONTINUED FROM PAGE 29)

the cooling medium which counteract the formation and deposit of insoluble salts or minerals which, together with rust and sludge, tend to reduce efficiency of the cooling system.

These chemicals, or inhibitors, are not cleaners and will not remove scale and rust which have already formed. The object in using them is to form a very thin adherent, insoluble protective coating on inner surfaces of radiator and cylinder block. It is therefore more advisable to use an inhibitor immediately after the system has been thoroughly cleaned or when the engine is new.

Hose Connections

Check all hose connections and hose clamps. Particular attention should be paid to the condition of the clamp and screw. If the threads are worn the clamp will loosen under operating pressure of the water, resulting in leakage.

The hose connections, in time, will swell inward and restrict the passage of water, and the hose between the water pump and lower tank of the radiator sometimes collapses. Check hose for sponginess by squeezing the hose when the water is not circulating. Deterioration of the inside lining restricts circulation, particles break off and lodge in the radiator core and other parts of the system.

When replacing hose, use a thin coating of cement at the joint and be careful not to pinch the hose when installing the clamp.

Water Pump

Leaking water pumps not only cause loss of the cooling system solution, but also permit air to enter the system, and accelerate the rust and corrosion action. Trouble usually is caused by the packing. The type of pump with an adjustable packing nut can be tightened easily, or new packing installed. When the self-adjusting type of pump leaks, the pump must be removed, and the pump shaft pressed out of the pump housing, and a new packing unit installed. If the shaft of either type of pump is worn where the packing fits, it should be replaced. Examine bushings, bearings and impeller for abnormal wear, and replace where necessary.

To prevent leakage and wear, the water pump should be lubricated regularly, using waterproof grease unless otherwise specified by the truck maker. Over-greasing pump eventually results in a grease clogged radiator. On some types of water pumps if lubricant is applied under great pressure, it will be forced out through bearing seals, wrecking the seals so that it will be necessary to install new bearings.

Thermostats

Thermostats should be checked for two conditions: first, to see that they operate properly without sticking, and second, to see that they open at the proper temperature. If conditions indicate that thermostat is not functioning properly, remove the assembly and inspect. If bellows and valve appear in good shape, test the assembly in a bucket of water which

(TURN TO PAGE 92, PLEASE)

NO BRAKE OR CLUTCH JOB TOO BIG FOR THE Chicago "APEX"

TESTED AND APPROVED FOR U. S. ARMY AND NAVY USE

THIS big, husky, rugged rivet setting machine fills the bill for truck fleet operators. Actually, it's a complete brake relining and clutch refacing department in itself. Every stage of the work; delining, drilling, countersinking, riveting, straightening and grinding is performed without the operator leaving the machine. Equipped with every known labor-saving feature. Handles any size job . . . passenger car, truck, bus, army transport and airplane brakes using tubular rivets . . . in less time and with less effort than any other foot power machine made.

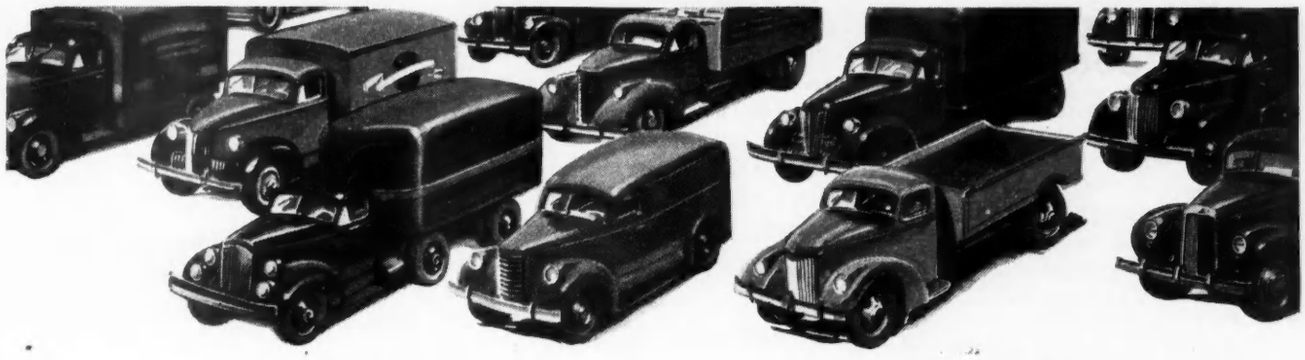
QUICK DELIVERY

APEX WORLD'S FINEST FOOT POWER RIVETING MACHINE
RELINES BRAKES—REFACES CLUTCHES WITH ORIGINAL FACTORY ACCURACY

★ SET BACK DELINER . . . Full vision clearance. Motionless, adjustable knockout punch. Built-in old rivet collector.
★ LOW HEAD . . . Specially designed to facilitate work even on small diameter bands.
★ ADJUSTABLE ANVIL . . . Quickly set for any length rivet.
★ DEEP THROAT . . . For easy working.
★ SHOE STRAIGHTENERS . . . Built in.
★ DRILLING UNIT . . . Two-speed, V-belt drive, no hand pressure required, foot operated.
★ GRINDING UNIT . . . Fully machined, large table, 6¼" cushioned abrasive drum.
★ CAPACITY . . . Up to ¼" diameter tubular or solid rivets.
★ POWERFUL . . . New toggle lever design.
★ QUIET . . . No noisy clatter.

WRITE FOR CATALOG DESCRIBING THE COMPLETE "CHICAGO" LINE

Chicago Rivet AND MACHINE CO.
9616 West Jackson Blvd., Bellwood, Ill.
Chicago Suburb



How Studebaker dealers have mobilized to "keep 'em rolling"

Factory and dealers carry on activities to meet wartime problems in truck transportation

INFORMATION CENTERS

to help truck operators with their applications for Certificates of War Necessity

TRANSPORTATION PLACEMENT PLAN

to help locate truck buyers and truck sellers in each community so that the Nation's pool of transportation can be used most effectively

CONSERVATION CAMPAIGN

to encourage and assist truck users in saving tires, materials and equipment

LONG before the truck transportation situation became critical, the Studebaker factory and Studebaker dealers were preparing plans to meet it. Today, with those plans in operation, Studebaker and its dealer organization are devoting their efforts and facilities to helping ease the truck transportation crisis.

Through hundreds of Information Centers established by Studebaker dealers and Studebaker factory branches, truck operators have been assisted in the preparation of their applications for Certificates of War Necessity.

Through the factory-developed Transportation Placement Plan, Studebaker dealers are helping speed the flow of used trucks from sellers to buyers in each community.

By means of its continuous campaign in support of the U. S. Truck Conservation Corps service campaign, Studebaker and its dealers are contributing their experience and their knowledge of truck service and operating problems to the protection of our vital supply of commercial vehicles.

The great Studebaker factories, of course, are no longer building cars and trucks for civilian use but are busy producing Wright Cyclone engines for the Flying Fortress, big, multiple-drive military trucks for the fighting fronts and supply lines of the United Nations and other war matériel.

THE STUDEBAKER CORPORATION
SOUTH BEND, INDIANA

PUT THE HEAT ON COOLING

(CONTINUED FROM PAGE 90)

may gradually be brought to opening temperature degree by heating. If the valve fails to open, the thermostat should be replaced. Do not attempt to repair a thermostat.

Fan Belt

Check fan belt for proper tension. Deflection should be sufficient that only normal load is placed on pump or fan bearing. If belt is adjusted too tight, it will wear out rapidly because it is abnormally stretched. A loose belt will cause the engine to overheat and will affect the generator so that it will not be able to keep the battery charged. Follow the manufacturer's recommendations for adjustment. Check condition of belt and replace if necessary.

Cylinder Head

Water joints loosen and leak, and require regular servicing. A leaking cylinder head joint, if neglected, will cause serious damage to engine and radiator. Check cylinder head gasket for blown spots and gas seepage into water passages.

Cylinder Block

Examine the block core plugs and engine drain cocks for leakage. In many instances these leak only under operating pressure, so look for telltale rust lines.

On engines equipped with block side plates, remove and clean all rust, scale and grease deposit from the water jacket. Examine the block side plates and if pitted from rust or corrosion replace both plates and gaskets.

On engines equipped with a valve port water distribution tube, remove the tube and clean thoroughly, Replace if tube is pitted from rust.

If engine is equipped with a water temperature gage, test for correct operation. If gage does not operate properly it may be due to a pinched line or a corroded fluid bulb. Replace if necessary.

Anti-Freeze Solutions

The entire cooling system should be checked and prepared as outlined above before any anti-freeze solution is installed in the system.

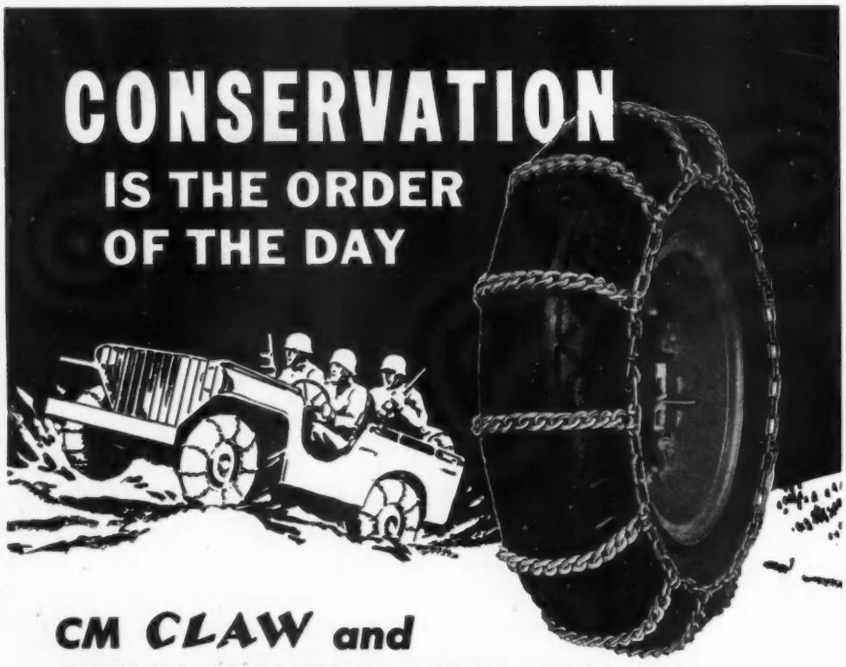
Information provided here is a guide to the operator in selecting an anti-freeze mixture, the most commonly used materials being: denatured alcohol, methanol (synthetic alcohol) and ethylene glycol (permanent anti-freeze).

Alcohols as now marketed for use as anti-freeze solutions usually contain an inhibitor as one of their ingredients.

Alcohol and methanol require the same quantity for anti-freeze solutions provided that (188 proof) alcohol or 76 per cent methanol is used.

Ethylene glycol solutions are generally treated to reduce corrosion. Use according to the manufacturers printed directions. Keep hose connections tight, and pump seals and cylinder head gaskets in good condition. Frequent inspection and test should be made for accidental leakage. If solution becomes brown or rusty in cooling system that was reasonably clean when anti-freeze was installed, occurence of corrosion is

(TURN TO PAGE 94, PLEASE)



CM CLAW and DREADNAUGHT TIRE CHAINS

have joined our armed forces—helping move troops and vital supplies through the sand, mud and snow —on the world's fighting fronts.

Obviously, CM truck and tire chains, though much needed "at home", will be available only in a limited supply. It is an essential part of everyone's war effort to make this supply last longer. Thoughtfulness and care will do it.

Repair last year's chains... put them on correctly... clean and dry after use... observe speed limits. This is *conservation* and calls for but little effort.

The reward is knowing that *you* and everyone else then have the advantages of safe winter driving, the assured transportation of our nation's workers, foodstuffs and war supplies. Even more gratifying is the knowledge that you are saving the sinews of war equipment production—*steel.*

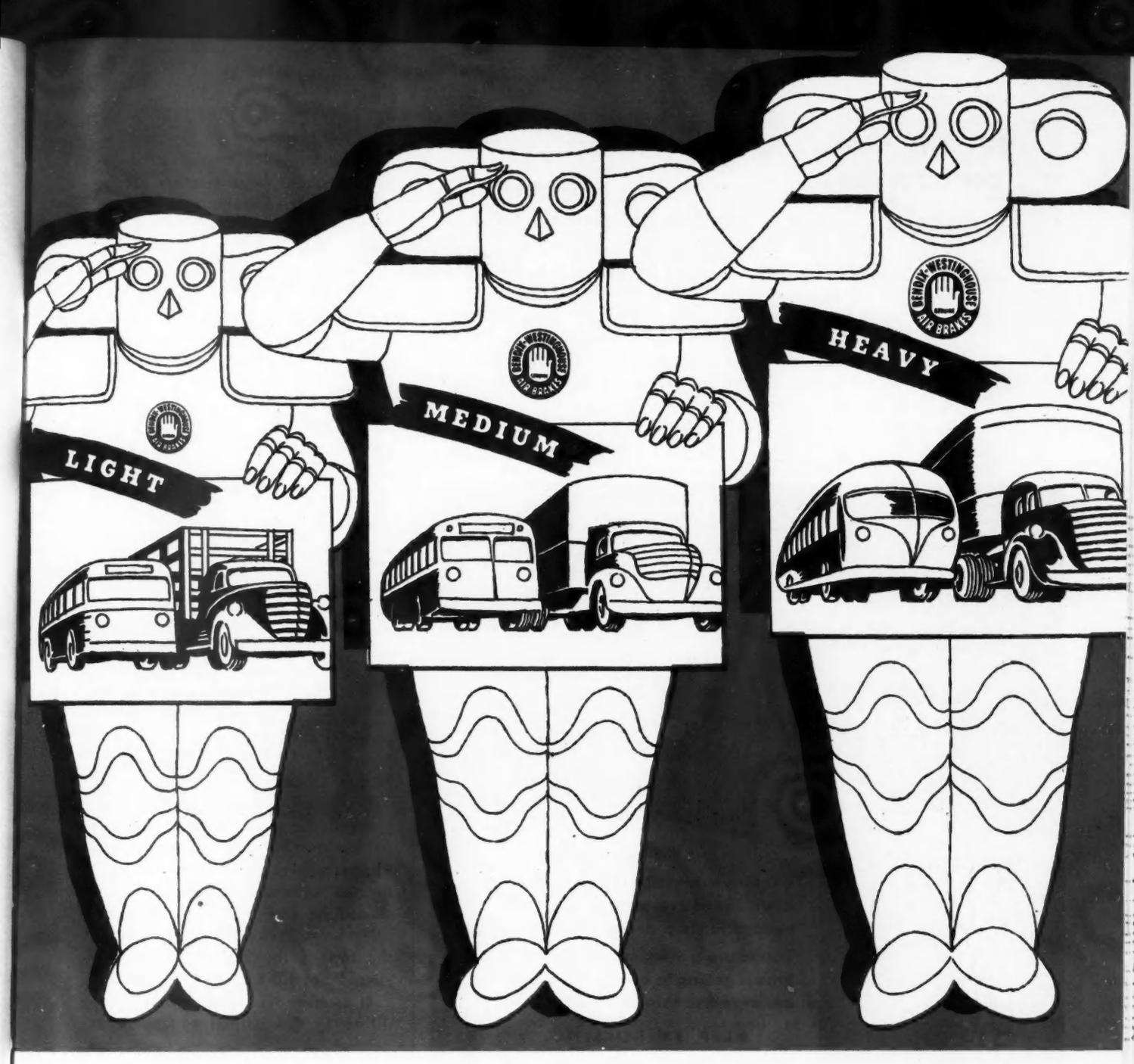
We know that you are with us in our all out effort to first take care of "Our Boys."

INVEST REGULARLY IN VICTORY—BUY WAR BONDS AND STAMPS

COLUMBUS-McKINNON *Chain* CORPORATION

General Offices: Tonawanda, New York

PLANTS AT ST. CATHERINES, ONT., CAN. AND VEREENIGING, SO. AFRICA



THREE GOOD MEN . . . AND TRUE

As ever, genuine Bendix-Westinghouse Automotive Air Brakes cover the entire field of commercial motor transportation with a specific control for each braking requirement ★ Bendix-Westinghouse fully recognizes the distinct variations between services and has engineered a safe, economical, powerful control to meet every purse and purpose ★ Today, as always, you may confidently select the genuine Bendix-Westinghouse Brake individually suited to your particular operation or service . . . and with full assurance that you have availed yourself of the finest ★ If you're not already fully aware of the very marked superiority and many exclusive advantages of genuine Bendix-Westinghouse Air Brakes and Air Control Devices, we earnestly suggest you contact your nearest Authorized Bendix-Westinghouse Distributor.

BENDIX-WESTINGHOUSE AUTOMOTIVE AIR BRAKE CO.
ELYRIA, OHIO

AN ORGANIZATION WHOSE UNDIVIDED EFFORT AND COMPLETE RESOURCES ARE DEVOTED TO YOUR CONVENIENCE AND SAFETY

PUT THE HEAT ON COOLING

(CONTINUED FROM PAGE 92)

indicated and the solution should be discarded and replaced. If this condition occurs, the cooling system should be checked for aeration (air leaks), hot spots, and cylinder head gasket leakage.

Salt solutions, such as calcium or magnesium chloride, sodium silicate, etc., honey glucose or sugar solutions and lubricating oils are not satisfactory for use in cooling systems.

Testing Anti-Freeze Solutions

Different freeze point hydrometers are used to test the various solutions, tests must be made at temperatures for which the particular hydrometer is calibrated and solutions brought to these temperatures before testing, or errors will result. The same hydrometer scale cannot be used for both denatured alcohol and methanol.

When it comes to actualy installing the anti-freeze solution selected, anticipate the coldest weather during which a given solution is to be used, then refer to anti-freeze chart and mix accordingly.

Avoid Air Pockets

There are two major points to be checked when pouring anti-freeze solutions into the radiator. The first of these is the danger of air pockets forming in the block as the solution is poured in. If they are allowed to form, the system will not have sufficient solution to fill it, and steam pockets will form. The engine should be run after the system appears to be full so that the temperature of the system will reach the point at which the thermostat opens. This will allow any trapped air to escape, and more water or anti-freeze can then be added to insure adequate circulation.

Avoid Over-filling

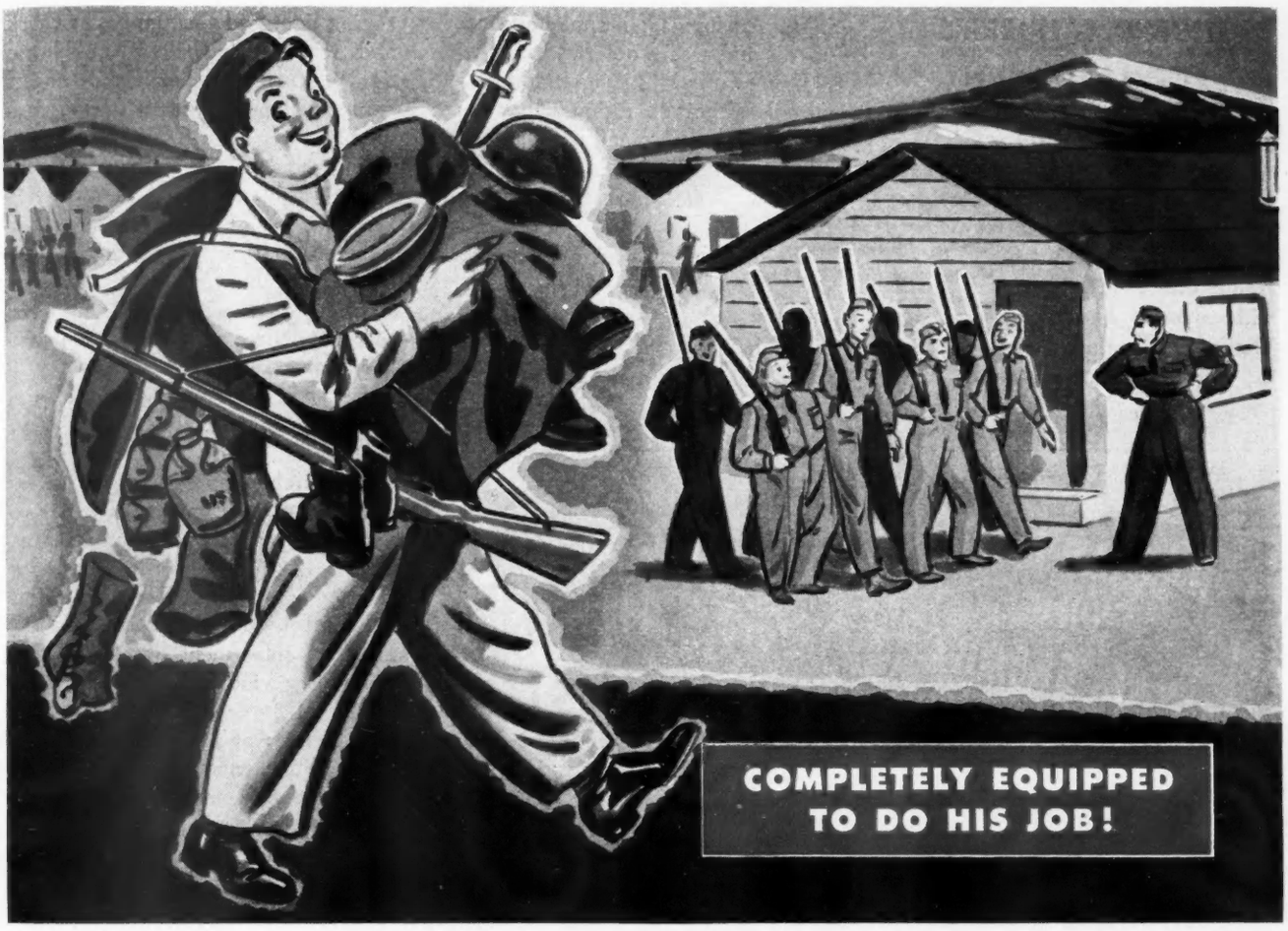
The second point is the danger of over-filling. Water as well as anti-freeze solutions will expand when heated, and allowance must be made for this expansion to prevent the level rising to the point where it will pass out the overflow pipe. Always check the water level when the engine is at normal operating temperature. It should be just visible through the filler neck, indicating that it covers the top of the radiator core, and should not fill up into the neck.

It must be remembered that in addition to the normal expansion at normal operating temperatures, this expansion is further increased after the truck is stopped. The temperature rises sometimes as much as 20 degrees when the engine is cut off, and this added expansion means that the level will rise and, if the system is too full, some of the solution will pass out through the overflow tube. This condition is known as "after boil," and is responsible for considerable solution loss with low boiling point anti-freeze solutions.

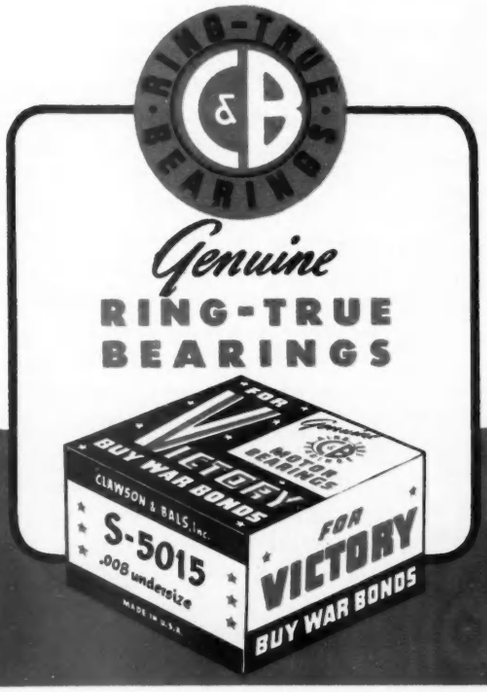
Even anti-freeze solutions need to be conserved today, and operators should instruct those who are responsible for filling the radiators in their fleets not to add water if it is visible through the filler neck after the engine is thoroughly warmed up.

END

(Please resume your reading on P. 30)



The C & B Line includes every type of bearing you need!



● *Really* complete motor bearing and connecting rod service—that is what you get in the C & B line. Ring-True bearings include all the latest types so necessary to top performance and *long life* in modern engines. There is the "Precision Lined" type—the resistance to fatigne of its ultra-thin lining increases bearing life 90%. The "Aviation" type copper alloy bearing withstands the high pressures of aircraft, Diesel and heavy-duty gasoline engines. The "Acid Proof" type, exclusively Ring-True, prevents bearing failures due to corrosion.

Specify the Ring-True type you need. Your jobber, in spite of Ring-True shipments to our fighting forces everywhere, can usually supply your legitimate needs.

Complete Motor Bearing and Connecting Rod Service

CLAWSON & BALS, INC., Chicago

Factory Stocks in Principal Cities

HUBER & HUBER'S ECONOMY HUNT

(CONTINUED FROM PAGE 35)

pretty close check on them by way of our mileage figures. We've tried using a smaller jet but found that it resulted in over-heating the motor, without improving the gas mileage. That's because the smaller jet makes the mixture too lean. On a heavy truck and a mountain run the engine is starved for gas; it runs hot, burns up oil and wears out faster.

Using our gas mileage figures, the oil mileage, oil condition, spark plug condition, motor analyzer and driver's complaints we know pretty well when to tune up or overhaul an engine.

Our tune-up procedure is as follows:

Check, clean and adjust plugs and points with point synchronizer; check and replace fuel pump if necessary; check and adjust timing with timing light and vacuum gage; check and replace fan belt if unable to tighten further; check and adjust front end and complete steering assembly; tighten and check all springs and the V-belt; check and adjust carburetor and float level; blow out all lines and check under pressure; check generator output, voltage regulator, coil, lights, battery and starter with electric analyzer and make necessary adjustments or replacements.

Our spring tune-up includes all the above, plus special flushing and cleaning of entire cooling system; general tightening; removal of cab heater and adjustment of thermostats, using reliable thermometer as gage. The fall tune-up includes cleaning of the cooling system, filling with anti-freeze, adjustment of thermostats, replacement of cab heater, check of windshield wipers and blades.

Since the war began, we check all valve adjustments once a week instead of once a month as formerly.

All repairs and adjustments are made to manufacturers' specifications. In 999 cases out of 1000, we find they know what's what. We use a vacuum pressure gage, air pressure gage, master oil pressure gage that we know is calibrated right, micrometer, feeler gages and electric analyzer in our tune-up and repair work. We gave up using our exhaust gas analyzer after finding that we had been leaning down our carburetors too much, causing overheating and no gas saving. Gas mileage reports tell us more and don't give trouble.

Keeping motors in good repair begins with the drivers who check water level every 100 miles, and oil level at least that often. An oil reservoir on the back of the dash makes it easy for the driver to keep up the oil level, because he just turns a petcock until the dip stick shows the level has been restored to full.

Road breakdowns are minimized by rebuilding motors from the clutch forward instead of just repairing one part. Complete rebuilding pays when parts must be salvaged. A completely rebuilt job runs longer without breakdowns and consequent loss of time, service and greater shop costs. It doesn't do nowadays to replace one worn-out bearing when half a dozen

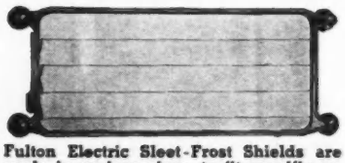
(TURN TO PAGE 98, PLEASE)

... *with* **FULTON SAFETY EQUIPMENT**

Motor transportation on *all fronts* must be kept moving with maximum safety and the least possible chance of accidents. Whether here at home, moving essential supplies and equipment, or in the battle areas on northern fronts around the world, trucks, cars, airplanes and small naval craft need the extra safety factor provided by Fulton Electric Sleet-Frost Shields and Fulton rubber-bladed defrosting and ventilating fans.

Clear vision is the first essential to safe driving or safe navigation . . . anywhere, anytime! **Thousands of army cars and trucks as well as War Industries fleets, are already equipped with Fulton "clear-vision safety equipment". Many thousands more will come off the production lines equipped to successfully combat the hazards of frost, ice and snow, and moisture condensation on vital glass surfaces.**

Time is short. Man power is short. War equipment is practically priceless. Victory for the United Nations hinges partly upon our ability to get more of everything to the places where needed . . . to *keep 'em moving* in the quickest possible way, with the least danger of accidents.



Fulton Electric Sleet-Frost Shields are made in various sizes, to fit specific requirements.

Licensed under U. S. Pat. No. 2,095,223 Canadian Pat. No. 370,548

No. 496 FAN

Universal type curved bracket permits mounting in choice of 4 directions. Ball-and-socket friction joint permits full swiveling, directing air current where needed.

• • •

FULTON ELECTRIC SLEET-FROST SHIELDS AND FULTON RUBBER-BLADED DEFROSTING AND VENTILATING FANS ARE PLAYING VITALLY IMPORTANT ROLES IN THESE OPERATIONS.

THE FULTON CO. 1912 South 82nd Street Milwaukee, Wisconsin

THROW YOUR SCRAP INTO THE FIGHT

RIGHT WHERE THE AXIS WANTS THEM

— AND THAT'S WHERE *YOU* COME IN!

THE critical battle of transportation has only begun. America's grim determination to produce and deliver PLENTY ENOUGH — SOON ENOUGH already imposes a swiftly mounting burden on every form of highway transport. Wear steadily increases . . . there's *a lot more than rubber* to be saved, conserved, kept rolling . . . and the only escape from the junk pile is right in the service shops of America!

From here in, every job of servicing, overhaul and repair that comes into your hands is a *war job.* Every truck, bus, car and tractor is both indispensable and *irreplaceable.* Keeping them in useful service is a front rank assignment in America's march to Victory!

★ ★ ★

It's a job that only you can do . . . and all America knows how superbly well you'll do it. Snap-on will be proud to help you wherever possible, with the tools essential to your task!

Snap-on Tools
THE CHOICE OF BETTER MECHANICS

SNAP-ON TOOLS CORPORATION
8026-L 28th Avenue Kenosha, Wis.

10¢ INVESTING FOR VICTORY! The employees of Snap-on Tools Corporation are enrolled in the Treasury's 10% payroll deduction plan.

HUBER & HUBER'S ECONOMY HUNT

(CONTINUED FROM PAGE 96)

other parts are near the worn-out point and the whole engine will have to be torn down soon again, and a lot of the tearing down repeated shortly thereafter for another reason. Better do the job thoroughly at one time.

Nothing metal or rubber is thrown away. If a part is repairable it is put aside to be worked on when other work is slack. We repair and rebuild carburetors, brake cylinders, water pumps, generators, starters, oil pumps, fuel pumps, wheels, distributers, entire engines, transmissions, rear axles and anything else that we can.

All nuts and bolts and other metal parts are saved. If usable, they are cleaned and put away. If not usable, they are sold as junk.

Salvaged parts are just as good as new ones and in some cases better. Body and cab parts when rewelded are usually stronger than originally. Small parts, carefully machined and refitted, are as good as new. We do every type of rebuilding and machining possible. Only metal spraying is done outside the shop.

Of course, this extra work brings our labor costs up some but new parts cost more, too, and laying up a truck when parts are not immediately available is costly also.

Some of our wartime salvage practices include:

1. Rebuilding front spindles and crankshafts by sending them out of town for metal spraying and grinding. We used to throw them away. Rebuilt spindles and shafts give as good service as new, when true, and cost less.

2. We take old bearings out of our heavy duty trucks and use them on city delivery trucks where service is light. This gives us about 33 per cent more mileage on bearings.

3. We use a bushing grinder instead of a reamer. This saves metal, gets a better fit and results in longer life for the parts.

4. When rebuilding torque arms and shackle shafts on trailers, we use bronze-to-steel in place of the original steel-to-steel. We find bronze-to-steel rebuilts, when kept properly lubricated, last twice as long.

5. Our springs are rebuilt at a Knoxville plant instead of being thrown away. This costs slightly less than new springs and gives the same spring life—as well as saving quite a bit of steel for Uncle Sam.

6. We straighten and reweld all our damaged wheels.

7. We reline all our brake shoes, rebuild brake parts, repair and rehone cylinders in our own shop.

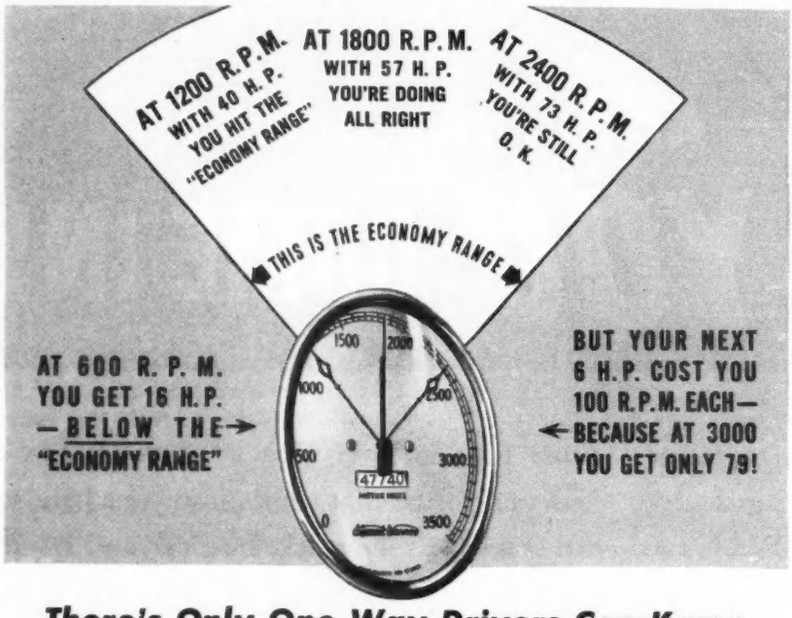
8. All motor maintenance is done in our shop except emergency road repairs and, as noted above, metal spraying of crankshafts.

In making these repairs every part, even down to cotter keys, is charged against the unit, so we can tell at a glance how much it cost, when due to wear out, and savings.

In addition, copper lines and rubber hose are saved, refitted or cut down for use on smaller trucks or on other jobs where shorter lines are needed.

(TURN TO PAGE 100, PLEASE)

WHEN YOU'RE PAYING 100 R.P.M. FOR EACH ADDED HORSEPOWER YOU'RE THROWING MONEY AWAY!


AT 1200 R.P.M. WITH 40 H.P. YOU HIT THE "ECONOMY RANGE"
AT 1800 R.P.M. WITH 57 H.P. YOU'RE DOING ALL RIGHT
AT 2400 R.P.M. WITH 73 H.P. YOU'RE STILL O.K.
THIS IS THE ECONOMY RANGE
AT 600 R.P.M. YOU GET 16 H.P. —BELOW THE— "ECONOMY RANGE"
BUT YOUR NEXT 6 H.P. COST YOU 100 R.P.M. EACH— BECAUSE AT 3000 YOU GET ONLY 79!
47740

There's Only One Way Drivers Can Know And That's by Using this Amazing Instrument!

THINK of the fuel—and the oil—and the wear and tear involved in spending 100 r.p.m. for the sake of getting a single added horsepower! It's rank extravagance to drive any truck at an engine speed above or below the "economy range"—but your drivers can't tell they're out of that range unless they're using the Stewart-Warner Motor Mile Tachometer!

With this amazing instrument, it's easy to stay within the "economy range"—because the upper and lower limits of that range are permanently marked by red pointers. In the case of the example shown here, those limits are 1200 and 2400. They will be different for other trucks.

Users report that Stewart-Warner Motor Mile Tachometers save up to 25% in gas and oil. And, because they permit servicing trucks on a basis of "motor miles" instead of road miles, they may easily save another 25% in repairs! *Write for complete information!*

STEWART-WARNER

MOTOR MILE TACHOMETER

STEWART-WARNER CORPORATION

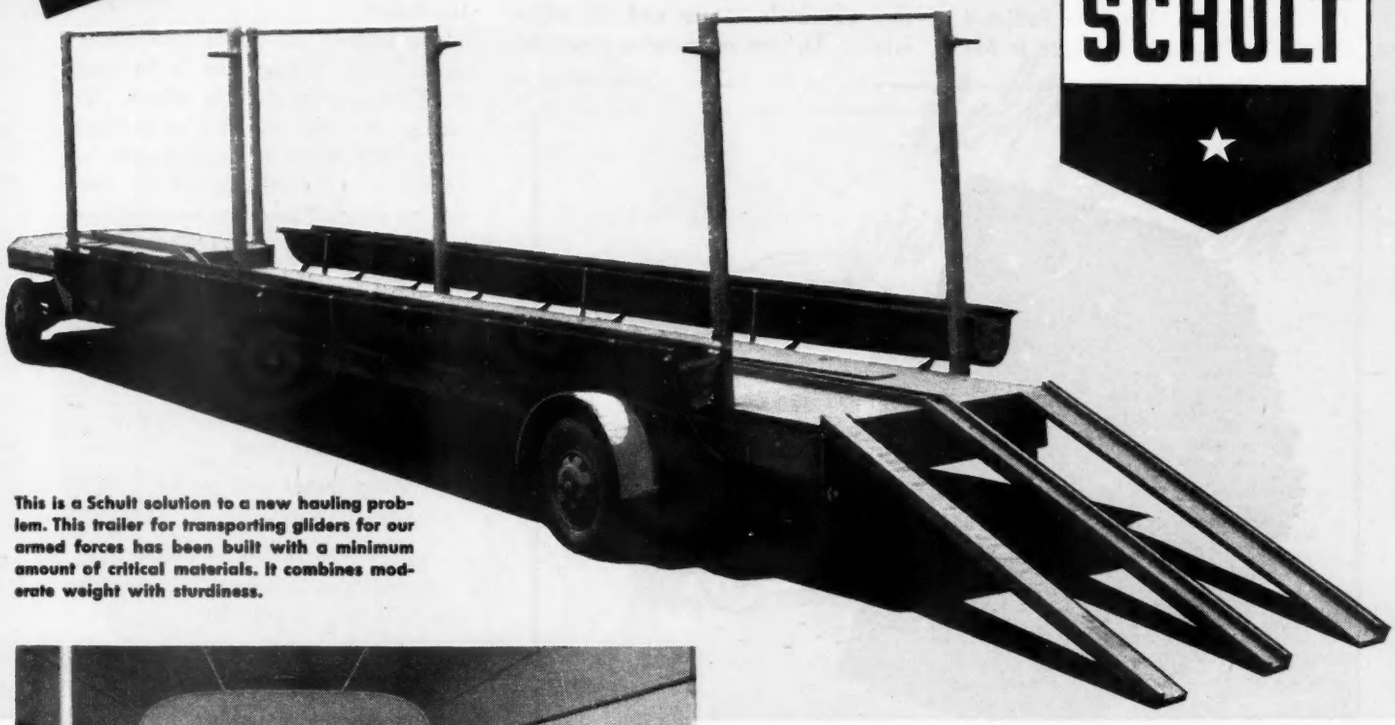
1876 DIVERSEY PARKWAY CHICAGO, ILLINOIS

Another Product of STEWART WARNER

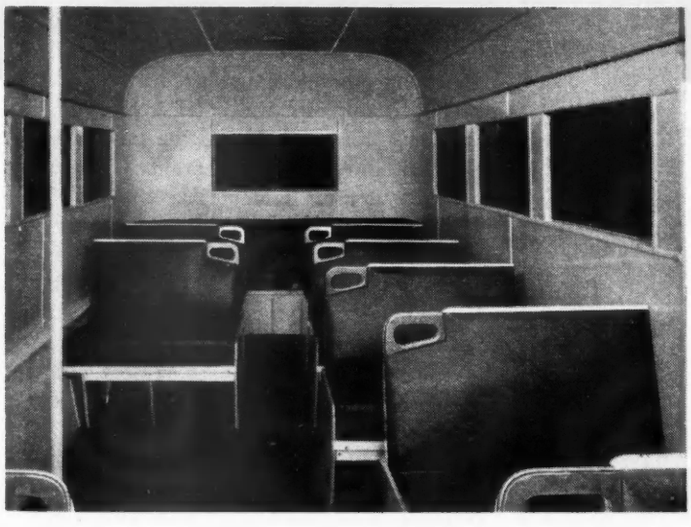
Airplane Wings, Buttons or Men—

SCHULT CAN SOLVE YOUR TRANSPORT PROBLEM

SCHULT



This is a Schult solution to a new hauling problem. This trailer for transporting gliders for our armed forces has been built with a minimum amount of critical materials. It combines moderate weight with sturdiness.



This interior of a Cleveland Transit System Bus *Trailer* shows the seating arrangement, giving maximum capacity with minimum use of critical materials. Many such trailers are used in hauling war workers for private industry.

It takes resourcefulness and "know how" to build the transport units Schult is furnishing to help solve today's knotty transport problems . . . Schult experience as builders of bodies and trailers for commerce and industry includes commercial bodies, freight trailer bodies, passenger bus bodies and trailers, medical and dental clinic trailers, laboratory trailers, horse trailers, glider trailers, etc., etc. . . . Schult will build in steel, steel and wood, or wood. We're specially trained and experienced in the most effective use of non-critical materials. Let our engineers go to work on *your* transportation problem. Call, wire or write today.

SCHULT TRAILERS, INC., Dept. 3512, Elkhart, Ind.

Manufacturers of Busses, Bodies and Trailers for Commerce and Industry

5 REASONS FOR CALLING SCHULT

1. We comply with wishes of the O.D.T., by building with a minimum use of critical materials.
2. Because we have the "know how" experience to build all kinds of bodies.
3. We are specialists. Schult workers have been doing exactly this type of construction for years.
4. Our plant facilities are readily adaptable to any kind of trailer or bus body work.
5. We have repeatedly proved our ability to make quick delivery.

★ *BUY U. S. WAR BONDS* ★

HUBER & HUBER'S ECONOMY HUNT

(CONTINUED FROM PAGE 98)

We find that engine repairs, gas and oil mileage and salvage are all directly tied up with temperature control. Use of thermostats, kept correct by checking with an accurate thermometer, cleaning of blocks and radiators, keeps our motors running at 160 deg. We don't use radiator covers in the winter as there is too much danger of overheating in our climate.

Correct timing, a gasoline-air mixture that is not too lean or too rich, water and oil pumps in good condition, fan belts properly adjusted, plenty of water in the radiator and oil in the motor is our prescription for temperature control.

Drivers are warned that there is no excuse for a burnt up motor and none will be accepted. As a result, they check the water and oil religiously. Drivers must never allow the oil level to be more than a quart low. Motors that have begun to use oil are checked every 50 miles. Others are checked every 100 miles.

For the month of June, 1942, we averaged 248.36 miles per quart of oil, less changes. This was on the Knoxville-Atlanta run over steep grades and during very hot weather. We attribute our long engine life and good gas and oil mileage partly to the use of large oil filters, the bigger the better.

We change oil about every 8000 miles in an engine that is in good condition, more often in others. We change cartridges or filter units about every 4000 miles, depending upon the condition of the oil and engine. Our engine maintenance figures over four years prove these practices sound and economical. We don't dope the oil as we found little benefit. Occasionally we use a crankcase testing service if we have a problem we can't lick.

Satisfactory oil milage, we believe, depends on four things:

1. Keep motor and cooling system in good condition.
2. Use a premium grade oil.
3. Use the lightest SAE viscosity that will stay in the motor.
4. Use the biggest filter we can get.

Top grades of oil give us more mileage than cheaper grades, brand for brand, and we've tried most of them. Since motors of the past two years have closer clearances, they run better on lighter oils.

Our records of oil use prove thin oils better in every case. We use SAE 20 in our Whites and SAE 30 in our Internationals the year around. In the winter, in a new motor, we will use SAE 10 in both Whites and Internationals and SAE 10 in some rebuilt motors, too.

We try to change the oil or cartridge before it gets so black that the motor needs flushing. With good oil and big filters flushing is unnecessary. When we find sludge in the crankcase that's a sign the motor needs repairing, not flushing. No reclaimed oil is used in our trucks.

Our records show that oil filters reduce oil costs about 50 per cent and make motors last 20 per cent longer, thus cutting maintenance cost considerably.

(TURN TO PAGE 104, PLEASE)

Winning the War is all that matters. Edwards is trying to do all it can toward that end.

WE'RE BUYING THEM—ARE YOU?

EDWARDS *Trailers*

EDWARDS IRON WORKS, INC., SOUTH BEND, IND.

PRODUCERS OF TRAILERS TO DELIVER THE GOODS... AND OTHER ITEMS UNCLE SAM NEEDS FOR VICTORY.

MONROE

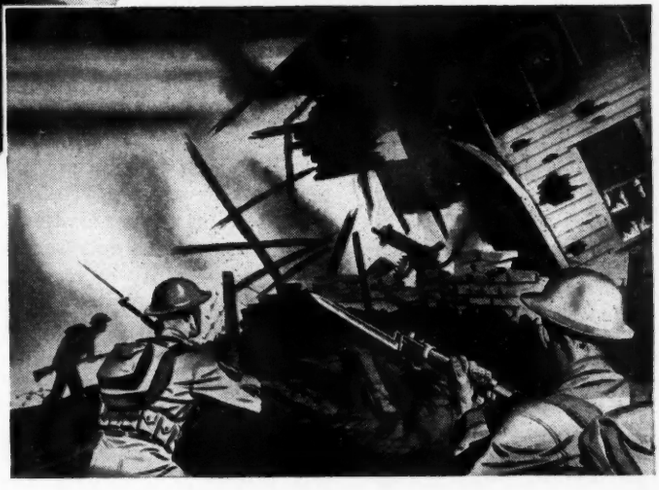
"AIRPLANE-TYPE" HYDRAULIC

SHOCK ABSORBERS

Help keep War Vehicles on a more even keel!

Keeping Tanks and other Armed War Vehicles on an even keel is most important to the gunner at his post.

Right on the target, regardless of rough terrains; those are the shots that are effective.



Monroe Shock Absorbers assist in increasing the percentage of hits, because they help to keep the vehicle on an even keel.

Monroes are sturdy and they are efficient—years of actual service prove this.

Monroes are used on the heaviest conveyances in the world; they are installed on over 70% of the Railway Passenger Cars built since 1937.

Monroe builds sizes for Tanks—Blitz Buggies—Troop Transports—Trucks—Busses—Ambulances—and Motorcycles.

MONROE

MONROE AUTO EQUIPMENT CO. . . MONROE, MICH.

HUBER & HUBER'S ECONOMY HUNT

(CONTINUED FROM PAGE 100)

We use factory-made replacements because we believe the freedom from lint and the chemical treatment of the packing, to reduce acidity and prevent formation of varnish, can't be duplicated in home-made cartridges.

We get the last few drops from every can of oil, and careful gas attendants, safety tanks and a separate company filling station eliminate gas spillage, waste, overfilling or theft of gas. Our detailed records enable us to know at a glance just how we stand on gas and oil.

Corner of Huber and Huber garage stockroom

This may sound as if we've got all our problems licked, but as every maintenance man knows, there's no such thing as peace for him. Anyhow, we're trying to keep 'em rolling with the least drain on our government's supplies so we can do our share toward rolling over the Axis.

END

(Please resume your reading on P. 36)

Eberhard

HINGES
LOCK HANDLES
LATCHES
DOOR IRONS
DOOR CONTROLS
SEAT IRONS
LOCK HANDLES
SEAT PEDESTALS
REFRIGERATOR LOCKS
PANEL DOOR LOCKS
VAN BODY LOCKS
SLIDING DOOR LOCKS
LADDER HOLDERS
ETC.

will come EVEN BETTER
TRUCK HARDWARE

Fighting men require transportation, shelter equipment, food, clothing, ammunition.

Movement of vast armies and millions of tons of supplies and equipment is directly the responsibility of transportation which is handled largely by trucks and trailers.

Many standard Eberhard products are in extensive use in war vehicles and the supporting fleet of transport trucks. Other items have been modified to meet unusual needs. Still other products have been developed by Eberhard engineers to meet highly specialized military demands.

This activity, following years of specialization in building truck hardware of generally conceded excellence, assures that *even better equipment will be available to the trucking industry after the war.*

LOOK TO EBERHARD

EBERHARD *Long Run*
TRUCK BODY FITTINGS

E

EBERHARD MANUFACTURING CO.
Division of the Eastern Malleable Iron Company • CLEVELAND, OHIO

TIRE CHAIN MAINTENANCE

(CONTINUED FROM PAGE 37)

the tread of the tire. Cross chains located in the out-of-balance section strike the pavement with a terrific force while neighboring cross chains hug the tire. The out-of-balance cross chains wear out in less than half the time of other cross chains on the same tire chain.

Four installation errors cause out-of-balance conditions:

1. Excessively close spacing of cross chains at side chain end hooks.
2. Excessively wide spacing of cross chains at end hooks.
3. Dangling extra links of side chain.
4. Twisted cross chains or side chains.

With a little care, each of these installation errors can be prevented. For instance, when chains are installed so that there is excessively close spacing at the end hooks, they should be re-spaced so that the weight is more uniformly distributed. When the opposite is true, an additional cross chain should be inserted. Care should be taken that the condition of too many chains at the hook does not occur. Dangling free links should be cut off at the time of installation, and special attention should be given to prevent any twisting of cross chains or side chains.

The figures below, based on actual road tests recently made by a leading chain manufacturer, show that in many cases one half or less normal mileage was obtained when chains were incorrectly installed.

For the test, a truck equipped with 32x6.00 tires was used. Moving at various speeds, the velocity of the

(TURN TO PAGE 106, PLEASE)

NATIONAL PERIODIC INSPECTION
NATIONAL PERIODIC INSPECTION SERVICE
2000-5000 MILE INSPECTION AND MOTOR TUNE-UP SERV
NATIONAL PERIODIC INSPECTION PROGRAM
1000 MILE LUBRICATION AND INSPECTION
HOW WE HELP YOU MEET
O. D. T. REQUIREMENTS
"KEEP 'EM ROLLING—LONGER"

• Here is help, practical, valuable, fully in accord with the extraordinary needs of today, offered you by a company specializing in lubrication problems for over sixty years.

National Periodic Inspection Service contributes directly to your profit in many ways.

1. Maximum performance will be maintained for longer periods.
2. Expensive replacements will be avoided for longer periods.
3. Failures on the road will be reduced to a minimum.
4. Miles per gallon of fuel will be increased because of smoother operation and maintenance of compression.
5. Less time will be spent in the shop and more on revenue service.

A complete sample set of National Periodic Inspection Service forms will be sent you free, without obligation. Write us today.

NATIONAL-IZE YOUR FLEET!

As an added measure of assurance of longer motor life, freedom from repairs and breakdowns, and lower fuel and oil consumption, we offer National SAVIT Service, a vital contribution to the O. D. T. program of "Keep 'em Rolling Longer". Without obligation, write or wire us for complete details.

NATIONAL SAVIT SERVICE

NATIONAL EN-AR-CO MOTOR OILS and LUBRICANTS

NATIONAL WHITE ROSE GASOLINE

THE NATIONAL REFINING COMPANY • CLEVELAND, OHIO

East of Ohio . . . The Globe Refining Company, Cleveland, Ohio

TIRE CHAIN MAINTENANCE

(CONTINUED FROM PAGE 104)

cross chains at the moment of impact on the pavement were found to be as follows:

Speed: M.P.H.	Velocity: Ft. per Second	Equivalent to Dropping Chains
30	44	30 Ft.-5 times per second
40	60	56 Ft.-7 times per second
50	73	84 Ft.-9 times per second

The above is based on tire chains that have been properly installed and are approximately in balance. If an out-of-balance condition exists, so that some cross chains extend only 3 in. from the tire tread, the following data will apply:

Speed: M.P.H.	Velocity: Ft. per Second	Equivalent to Dropping Chains
30	49	37 Ft.-5 times per second
40	70	77 Ft.-7 times per second
50	87	119 Ft.-9 times per second

A comparison of these two tables will show the great increase in velocity caused by an out-of-balance condition, and will also indicate the tremendous increase in pounding which the out-of-balance cross chains must withstand.

One large fleet operator also decided to make tests to determine how chain balance affects tire chain wear. For the test, a truck equipped with 9.00/22 tires and carrying half its normal load, was used. New chains were fitted and the truck was operated on dry, concrete roads. The chains were fitted to the inner wheels for one day's running and on the second day they were fitted to the outer duals and run until a failure occurred.

At first the chains were installed as tightly as possible. This fitting was impractical because before many miles had been covered it was found that the chains would not creep and consequently the tires were chafed.

The destruction tests showed that the method of installing and maintaining chains is more important than the quality of the chain itself although this latter item is not one to be disregarded. The tighter the chain the better, provided the chain can creep. A chain of the correct tightness, for long life without damage to the tire, can be tested by pulling a cross link directly away from the tire by hand. The knuckle of the hand should be about 1 in. from the tire.

Balance is the chief determining factor in chain life. The tests showed that, without variation, the first cross links to fail were those nearest the catch where the weight was concentrated. The weight consists of the two catches and the two adjacent links which, depending upon exact tire size, may be spaced closer than the other cross links.

The tests showed the same thing with monotonous regularity. The cross chains at the heavy point in the chain pulled away from the tire in operation and struck the road with greater force than those that hugged the tire. So-called stretchers did not change this action, because the force that pulled the heavy point away from the tire was far too great for a stretcher to have appreciable restraining effect.

As a result of these tests, this fleet operator has some very definite ideas about chain maintenance. Replacing broken cross chains with new ones throws the chain further out of bal-

(TURN TO PAGE 108, PLEASE)

Du Pont Announces

A NEW PLASTIC "CAVALON"*

Synthetic Resin Coated Upholstery Fabric

AS YOU KNOW, the use of both crude and synthetic rubber has been almost entirely diverted to the war effort. This excludes the manufacture of rubberized upholstery fabrics for any purpose.

To relieve this war situation, the Du Pont laboratories have developed a new formula for "Cavalon" based on synthetic resin compositions. This is important news, because synthetic resins have become such a vital part of our war effort —may well become a vital part of our civilian industry after the war.

The new "Cavalon" formula using synthetic resins has been tried and proved in use on war order applications calling for an upholstery material to be supplied in accordance with Federal Specification E-KKL-136-A, Type 3 Class A & B. It gives an upholstery material of superior quality and resistance to exposure and general abrasive wear. It can be made in a wide range of colors and grains.

"Cavalon" has built a reputation as an outstanding development in the field of upholstery fabrics for heavy duty civilian service. Plastic "Cavalon" cannot be offered for public sale now—military needs come first. After the war, you will be able to specify "Cavalon" when you want superior quality in a coated fabric for upholstery use. E. I. du Pont de Nemours & Co. (Inc.), Rubber Product Sales, Fairfield, Conn.

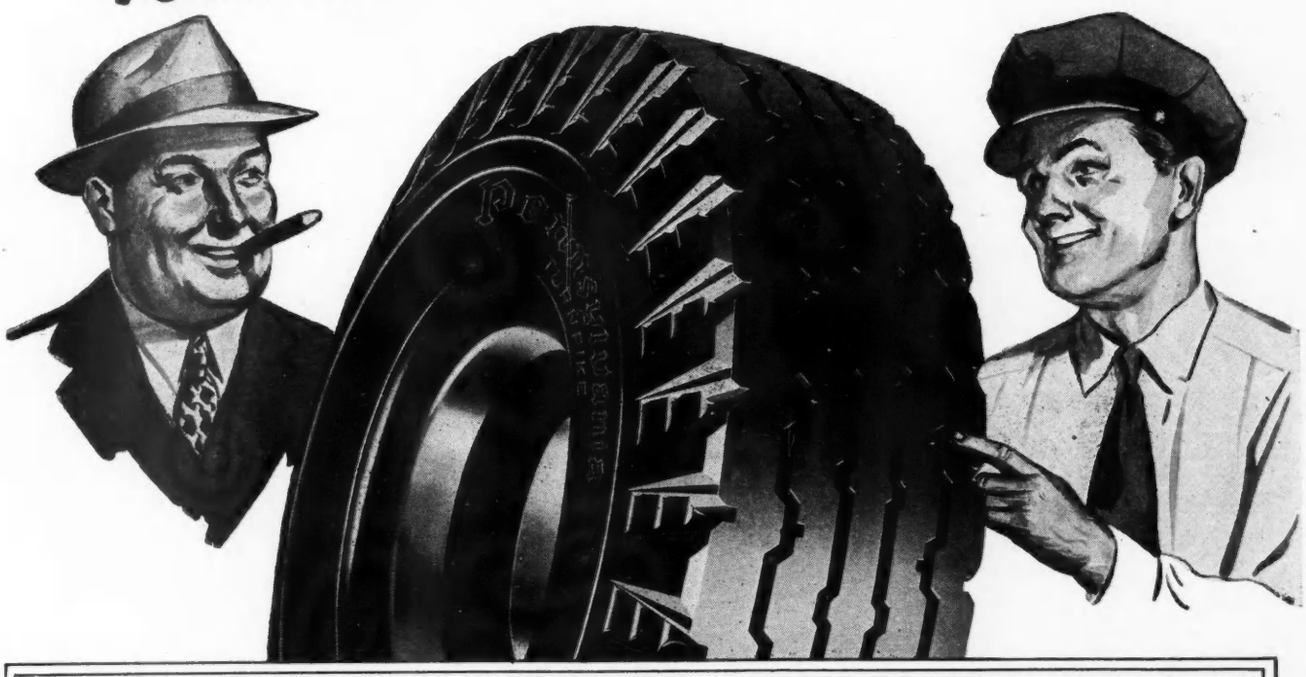
*Plastic "Cavalon" is Du Pont's trade mark designating its synthetic coated upholstery fabric.

DU PONT

Plastic **CAVALON**

Better Things for Better Living . . . *Through Chemistry*

GET LONGEST TOTAL MILEAGE ON YOUR TIRE RATION CERTIFICATES



PENNSYLVANIA TIRES HAVE THE GUTS TO OUTLAST TREAD AFTER TREAD!

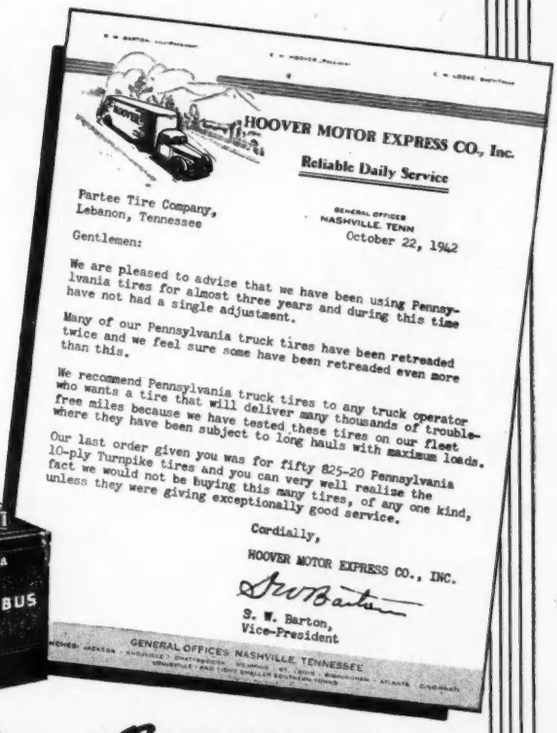
Fleet operators are finding that Pennsylvania Tires have exclusive features of built-in strength . . . features that make them run cooler and stay strong and sound for *more* recapping or retreading.

Scores of letters like the one at right give the results of tests, and tell of service records that *prove* Pennsylvanias' longer TOTAL mileage . . . mileage that gets the most out of every hard-to-get ration certificate.

Call on your Pennsylvania dealer! He has all details . . . knows rationing procedure . . . will help you select the right tire for your type of service.

Ask to have your retreads made with genuine Pennsylvania Camelback.

. . . Pennsylvania storage batteries are available for every automotive need.



HOOVER MOTOR EXPRESS CO., Inc.
Reliable Daily Service

Partee Tire Company,
Lebanon, Tennessee

GENERAL OFFICES
NASHVILLE, TENN.
October 22, 1942

Gentlemen:

We are pleased to advise that we have been using Pennsylvania tires for almost three years and during this time have not had a single adjustment.

Many of our Pennsylvania truck tires have been retreaded twice and we feel sure some have been retreaded even more than this.

We recommend Pennsylvania truck tires to any truck operator who wants a tire that will deliver many thousands of trouble-free miles because we have tested these tires on our fleet where they have been subject to long hauls with maximum loads.

Our last order given you was for fifty 825-20 Pennsylvania 10-ply Turnpike tires and you can very well realize the fact we would not be buying this many tires, of any one kind, unless they were giving exceptionally good service.

Cordially,

HOOVER MOTOR EXPRESS CO., INC.

S. W. Barton,
Vice-President

GENERAL OFFICES NASHVILLE, TENNESSEE

Pennsylvania Rubber Company

JEANNETTE, PENNSYLVANIA

TIRE CHAIN MAINTENANCE

(CONTINUED FROM PAGE 106)

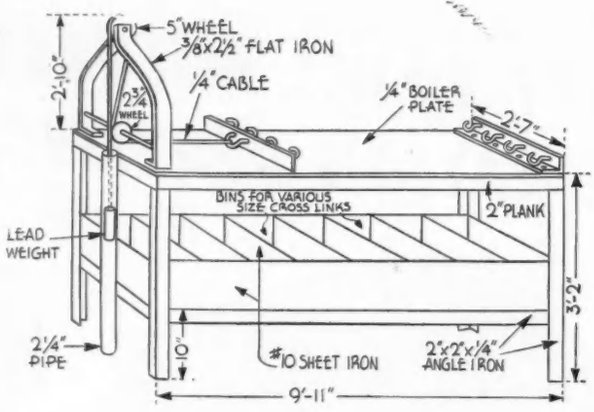


Fig. 1. This drawing of a chain stretching bench was made from one used by a fleet operator having to service chains for 65 trucks. In view of the present metal shortage, wood can be substituted for the metal parts indicated in the drawing.

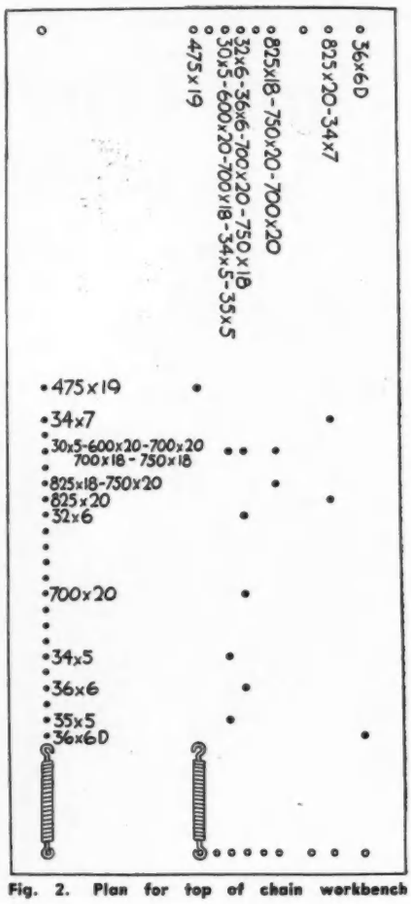


Fig. 2. Plan for top of chain workbench

Watch Your Speed! YOUR GALION HYDRAULIC HOIST WILL HELP CONSERVE TIRES . .

NO TRUCK HAS EVER OUTLASTED A GALION HYDRAULIC DUMP BODY

The GALION patented double lift arm hydraulic hoist always has been built for speed and for years of hard usage. The life of your truck and its tires, however, will be greatly increased by reducing their speed of operation. Get behind this vital truck conservation program.

THE GALION ALLSTEEL BODY CO., Galion, Ohio, U. S. A.

BUY WAR BONDS AND STAMPS

ance than it was before the failure because a new cross chain weighs more than a worn one, and because the breakage occurs at the already heavy point. Thus a new cross chain at this point will cause more rapid destruction than ever.

To cover the maintenance phase of chain life this operator has issued the following instructions:

1. Do not install two new cross chains in successive positions. Where it is necessary to replace cross chains in successive positions, it is better to install one new chain and remove a worn chain from the opposite side of the wheel for a replacement in the succeeding position. Install a new chain where old one was removed.

2. The first and second replacement cross chains in a new set of chains should not be new cross chains but worn ones taken from approximately the opposite side of the wheel from where the breaks occurred. The vacancies should then be filled with new cross chains.

3. When half the original cross chains in a set have been replaced, it is better to replace all well-worn

(TURN TO PAGE 110, PLEASE)

MORE ROLLS

MAKE Tyson A BETTER BEARING

"Keep 'em Rolling"
SAYS O.D.T.
The order of the day is Preventive Maintenance. Here's how to make anti-friction bearings last longer:
1 Inspect and lubricate at regular intervals.
2 Use good lubricant.
3 Clean housing thoroughly when installing.
4 Check that the bearings are properly adjusted.

★ It's logical—and true—that a bearing with more rolls will carry a greater load, and last longer, than a bearing with a lesser number of rolls of similar size.

It's logical—and true—that a Tyson Cageless Bearing, with a *full complement* of rolls around the raceway, will carry the greatest load and last longest under comparable operating conditions. Throughout the range of sizes, Tyson "All-Rolls" Bearings have about 30% more load-carrying rolls than other tapered roller bearings.

Tyson Cageless is interchangeable, part for part, with other tapered roller bearings. Part numbers and prices are the same. For every heavy-duty use, ask for Tyson.

TYSON BEARING CORPORATION, MASSILLON, OHIO

Cageless FOR HARD SERVICE • *Cage-type* FOR REGULAR SERVICE

Tyson **HEAVY-DUTY BEARINGS AND PRECISION AIRCRAFT PARTS**

In addition to bearings for Army and Navy guns and essential automotive and industrial uses, Tyson makes precision parts for America's fighting planes.

TIRE CHAIN MAINTENANCE

(CONTINUED FROM PAGE 108)

cross chains with new ones. The worn chains to be used for future replacement or for rebuilding other sets in similar condition of wear.

Now let's consider the maintenance of chains further.

Considered solely in terms of dollars and cents, chains can represent a considerable investment. Just how much, can never be told accurately in advance because the length of the snow and ice period varies from year to year even in the same location. When chain repairs run high, it almost follows that the labor cost of handling chains amounts to more money in a season than the cost of the chains. Both labor and material cost can be reduced appreciably by reducing chain maintenance to the same orderly type of procedure that governs preventive maintenance inspections.

Fleet operators who have made progress in handling chains report that under no consideration should mechanics be allowed to work on chains on the floor, nor should they be permitted to work without proper tool equipment. Without a proper tool, for removing worn or broken cross links and installing new ones, the personal injury accidents are frequent: as a result of using a hammer and chisel, for example. There is also a terrific time penalty.

The chain stretching bench illustrated in Fig. 1 has been in use for some time in a fleet shop that operates about 65 trucks. The report on it states that two men are able to keep up with the chain situation as the trucks come in to be passed, oiled and washed. Previously it sometimes took the inspectors all night to repair the chains, frequently holding up loading in the morning. This type of chain stretching bench employs counter-weights and pulleys to hold the chain in line. This helps to avoid twists when inserting new cross links.

The layout showing chain sizes, Fig. 2, is another scheme for similar handling of chains upon the working surface of the chain bench. It is not complete, since it was developed for one particular fleet. It represents an effort to standardize on chain sizes, which has worked very well.

In order to keep the inventory of cross links as low as possible and the different sizes down to the lowest number necessary to service the fleet, a study of chain sizes is necessary. By varying the length of the stretcher chain it is possible to reduce the number of cross link sizes. Since the cross links are the part that have high replacement, this is desirable. Different make chains do not always match up in cross link length even though they will all fit a given tire size.

By laying out the working surface of the chain bench, as shown in Fig. 2, it is possible to stretch various size chains from a common point, at upper left corner, to predetermined widths and lengths where they are pegged on a machine screw through a hole in the table top.

This makes it possible to identify the chains immediately by size and to replace worn cross links with the proper size. It is then possible to have fewer spares without running the

(TURN TO PAGE 112, PLEASE)

Announcing

IMPERIAL *Plastic* FITTINGS

FOR USE WITH COPPER, BRASS, ALUMINUM and PLASTIC TUBING

— a replacement for brass fittings

WITH the war effort calling for every pound of copper that can be produced, it is not possible to supply brass fittings for any service except the most essential war requirements. Since tubing connections are so important on automobiles, trucks, tractors, buses, etc., a great deal of research has been carried on to find a satisfactory substitute for brass fittings for such services.

As a result of that research Imperial Plastic Fittings and Tubing are now available to the trade and, at this time, can be shipped without priority ratings being required.

This new development will make it possible for service men to handle almost any tubing connection problem that may be encountered in automotive maintenance work.

Bulletin No. 331 gives complete information and prices.

Write for your copy

THE IMPERIAL BRASS MFG. CO.

1209 N. Harrison St., Chicago, Illinois

S.A.E. Plastic (Saran) Fittings for ⅛" to ¾" O.D. tubing.

No. 41-PL Union Nut

No. 42-PL Union Coupling

No. 48-PL Half Union

No. 44-PL Tee

No. 49-PL Elbow

IMPERIAL

Automotive Products

TUBE FITTINGS ★ FLEXIBLE TUBING ★ TUBING SERVICE TOOLS
BATTERY TESTERS ★ FREEZETESTERS ★ WELDING OUTFITS

Order from Your Jobber

*SARAN

Imperial Plastic (Saran) tubing packages in 25-ft coils. Wall thickness of .031" and .062" in ⅛", 5/16", ¼", 5/16", ⅜", 7/16" and ½.

Keep Your Trucks READY TO GO with a TUNGAR Two Rate CHARGER

For 40-amp. Charging of 6-volt or 12-volt Batteries

Avoid delays. Prevent tie-ups. Keep your electric trucks ready to go!

The Tungar Two-Rate Charger will completely recharge a run-down battery quickly and safely. Sizes are available for 6- and 12-volt batteries. The initial high-rate charge of 40 amperes, adjustable from 1 to 6 hours, automatically drops to a low finishing rate of 16 amperes for the last 20 per cent of the charge, then automatically cuts off.

Portable—can be easily moved to any desired location. Complete—furnished with long d-c leads and clips, a long a-c lead which plugs into any convenience outlet of the proper rating, and two 99X45 Tungar Bulbs. Compact—requires less than one square foot of floor space.

It Can Do a Real Job for You

FOR MORE INFORMATION, WRITE US OR SEND THIS COUPON TODAY

Section A1225-74, Appliance and Merchandise Department, General Electric Company, Bridgeport, Connecticut.

Sirs: Please send more information on Tungar Two-Rate Chargers.

Name.....

Street.....

City..... State.....

GENERAL ELECTRIC

(CONTINUED FROM PAGE 110)

risk of having them mixed up and causing confusion.

Here is a summary of chain conservation and maintenance points for fleet operators to remember:

1. Scarcity of steel makes it imperative that you get the very last mile out of your present chain equipment.

2. Repair and recondition all the tire chains you have.

3. Put them on right. Avoid twists; pull up evenly, tight enough to reduce throw of cross chains to a minimum, but loose enough to allow chain to creep on tire.

4. Drive slowly. Remember that doubling speed of travel increases the impact of cross chains on the road four times, thus wears them out four times faster.

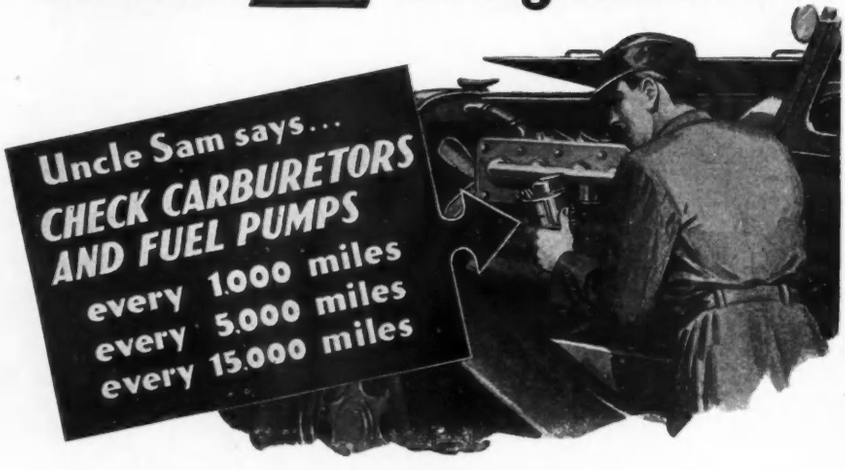
5. Clean chains after use. Rust and dirt are "saboteurs."

6. Use chains only when necessary.

END

(Please resume your reading on P. 38)

What are YOU doing about it?



Contain-All Kits
FOR CARBURETORS AND FUEL PUMPS

IT'S tremendously important to keep carburetors and fuel pumps at high operating efficiency, according to the U. S. Office of Defense Transportation. Regular inspection is recommended every 1,000 — 5,000 — and 15,000 miles!

If adjustments are needed they ought to be made at once. And where these units show wear they should be rebuilt.

What are YOU doing about this vital branch of "Preventive Maintenance"? Remember, properly reconditioned carburetors and fuel pumps save gas—save the cost of a complete new unit—and save the loss of valuable operating hours.

You'll find Hygrade's Contain-All Kits a big help to your mechanics in work of this type. They put real speed into the job. And you can be sure that the results will be 100% satisfactory!

From your jobber or write us direct

HYGRADE PRODUCTS CO., INC.
35-35 Thirty-fifth St., Long Island City, N. Y.

Replacement Parts for Carburetors, Fuel Pumps and Shock Absorbers; Speedometer Shafting and Casings; Fuel Lines and Fittings.

Hygrade Line AUTOMOTIVE PRODUCTS

Don't BUY Labor—SELL it!

HYGRADE

WOMEN DRIVE ARMY TRUCKS

(CONTINUED FROM PAGE 39)

from 85-pound Mary Reed, who handles a cargo truck with all the finesse of a motor transport veteran, to husky Doris Batchelor, who weighs in at the 200-pound mark. No uniform is required of the women in this work, although all of them wear slacks for comfort and convenience.

Women drivers are easier to handle than men drivers. They follow orders explicitly, obey traffic laws and are less likely to follow their own whims and habits than are men drivers. They are conscientious and learn quickly.

At least one male driver accompanies each group of women drivers on each drive-away trip. He leads the column, looks after any mechanical trouble, and makes any tire changes that may be necessary. However, some of the women have displayed mechanical aptitude and a willingness to help out in any difficulty. An Army half-trac vehicle slipped its track in a slight mishap in Ohio on one trip. A couple of the women drivers helped the crew leader put the track back on the sprockets and the vehicle resumed its journey.

Our safety experience with women drivers has proven especially satisfactory. Over a three-month period the women drivers had only 8 per cent of the accidents while delivering approximately 33 1/3 per cent of the military vehicles handled by our company. Men drivers, who delivered 66 2/3 per cent of the vehicles, were involved in 92 per cent of the accidents. In the first five months that we have employed women drivers, they have delivered 2200 units for the Army. During that time they have not been involved in a single mishap where the insurance company had to make restitution under the $50 deductible clause in our policy.

The women drivers have had only one accident of consequence. That occurred when a cargo truck skidded on wet pavement at a railroad crossing. The vehicle went out of control and landed on its side in a ditch. However, the damage was limited to scratching up of the paint. The first 200 Army vehicles were delivered without a scratch by our feminine

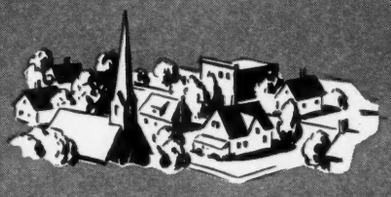
(TURN TO PAGE 114, PLEASE)

MILLER

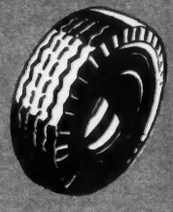
Nearly 7,000,000 reasons why
YOUR TRUCK TIRES MUST LAST LONGER

According to the 1942 edition of "Motor Truck Facts" there are *6,900,000* people living in 54,000 communities in these United States that are entirely dependent on motor trucks for freight service.

Even if *your* trucks do not serve one of these communities, they are still a vital link in our transportation system, and an important asset in America's war effort.



Your truck tires must be made to produce extra miles of wear. Reduce your speed, maintain your air pressure, be sure your loads are properly distributed, avoid bumps and curbs and "jack-rabbit" starts. With proper care and service, your tires will outlast your fondest hopes.



And when the time comes when you *have* to buy tires, you'll find that Miller's revolutionary "Speed-Run Construction" can give you a sturdy tire body built not only for long, original mileage but for the plus mileage which efficient retread or recap service can add.

JOIN THE U.S. TRUCK CONSERVATION CORPS

MILLER

"Heavy Service" Truck Tires

Akron, Ohio Los Angeles, Calif.

WOMEN DRIVE ARMY TRUCKS

(CONTINUED FROM PAGE 112)

drivers. The women drive all types of Army vehicles, ranging from ¾-ton carry-alls and reconnaissance cars to 4-ton 6 x 6 wreckers and armored half-trac units.

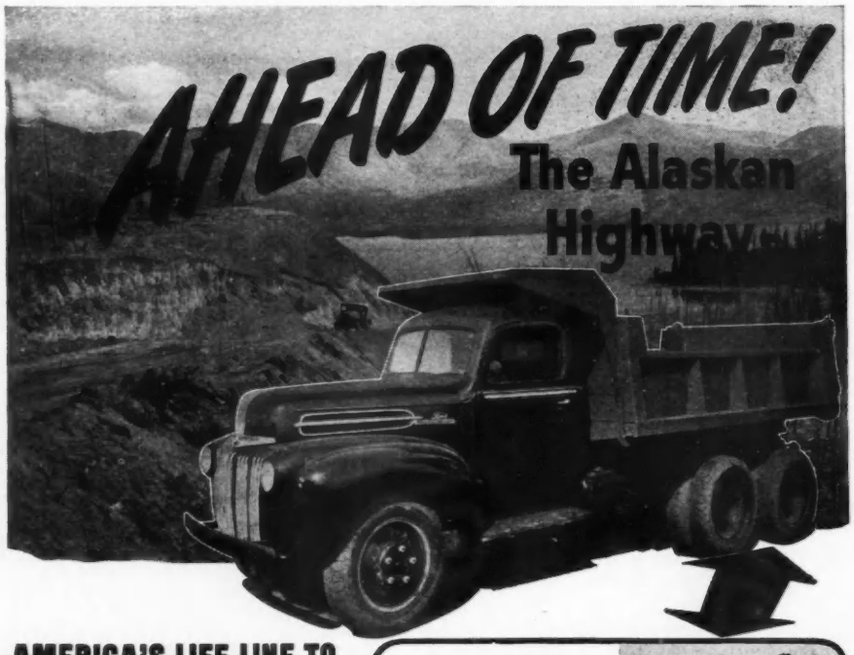
Our biggest women's truck convoy consisted of three crews of six women each, accompanied by several men drivers. The longest run has been from Detroit to Fort Devens, Mass., a 684-mile trip which was made in four days. The women drivers were well received at the Army post and were invited to have mess with the soldiers.

Women drivers, like men, are limited to 10 hours' driving in a 24-hour period, with the next eight hours off, under the I.C.C. regulations. They receive the same wages as men drivers. They become members of the International Brotherhood of Teamsters under our contract with that organization. The Teamsters' union welcomes them as members and calls them "teamsterettes".

Some of our older men drivers resented the intrusion of women when the first group was hired. They believed that trucking was a "he-man" business and that women were not fit to handle trucks on the road. But after the women had proved their ability to handle Army trucks, most of the men drivers overcame their prejudices.

END

(Please resume your reading on P. 40)

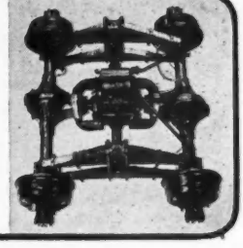


AMERICA'S LIFE LINE TO THE NORTH IS OPEN!—

Operating months ahead of even the stiff schedule set up by Army engineers!

A tough assignment in rough country calling for husky, durable, efficient equipment — and right on the job is a big fleet of trucks with

Put TWO driving axles under the load instead of one, double the gear speeds, improve springing and load flotation, gain vastly superior tractive ability.



THORNTON FOUR-REAR-WHEEL DRIVE

By means of **THORNTON** installations these trucks have been converted from 1½ to 2-ton vehicles into heavy-duty, four-rear-wheel drive trucks handling 6-yard dump bodies.

Standard heavy-duty trucks are not available today—but here is the answer to that problem. You can convert new or used 1½ to 3-ton trucks to husky, reliable heavy-duty units of more than twice the capacity. They actually do the job better and cost less.

While Uncle Sam still approves, act quickly! Contact your nearest Truckstell-**THORNTON** dealer or wire the factory direct. Trained men will engineer this equipment to suit **YOUR OWN PARTICULAR JOB.**

THORNTON TANDEM CO.
8715-8779 GRINNELL AVE. DETROIT, MICH.
Manufacturers also of the THORNTON automatic-locking DIFFERENTIAL
"When you need TRACTION you need THORNTON"

SHOP AND SALVAGE HINTS

(CONTINUED FROM PAGE 33)

7. Salvaging Wheels

by F. W. Green, Oshkosh, Wis.

We have some trucks in our fleet that have splined rear wheel hubs and many times these splines have been sheared right out of the hubs and ruined the wheels. The normal remedy is to buy new wheels.

To conserve, we drilled out the wheel hub the length of the spline to a diameter larger than the depth of the splines; in this case, to a 3-in. diameter. A new hub was made locally that could be presed into the old wheel center and a flange was left on the tailored hub so that it could be electrically welded to the wheel. The new hub with duplicate splines cost about $6. When it was inserted in the wheel and welded into place, the wheel was as good as new.

8. Saving Exhaust Gaskets

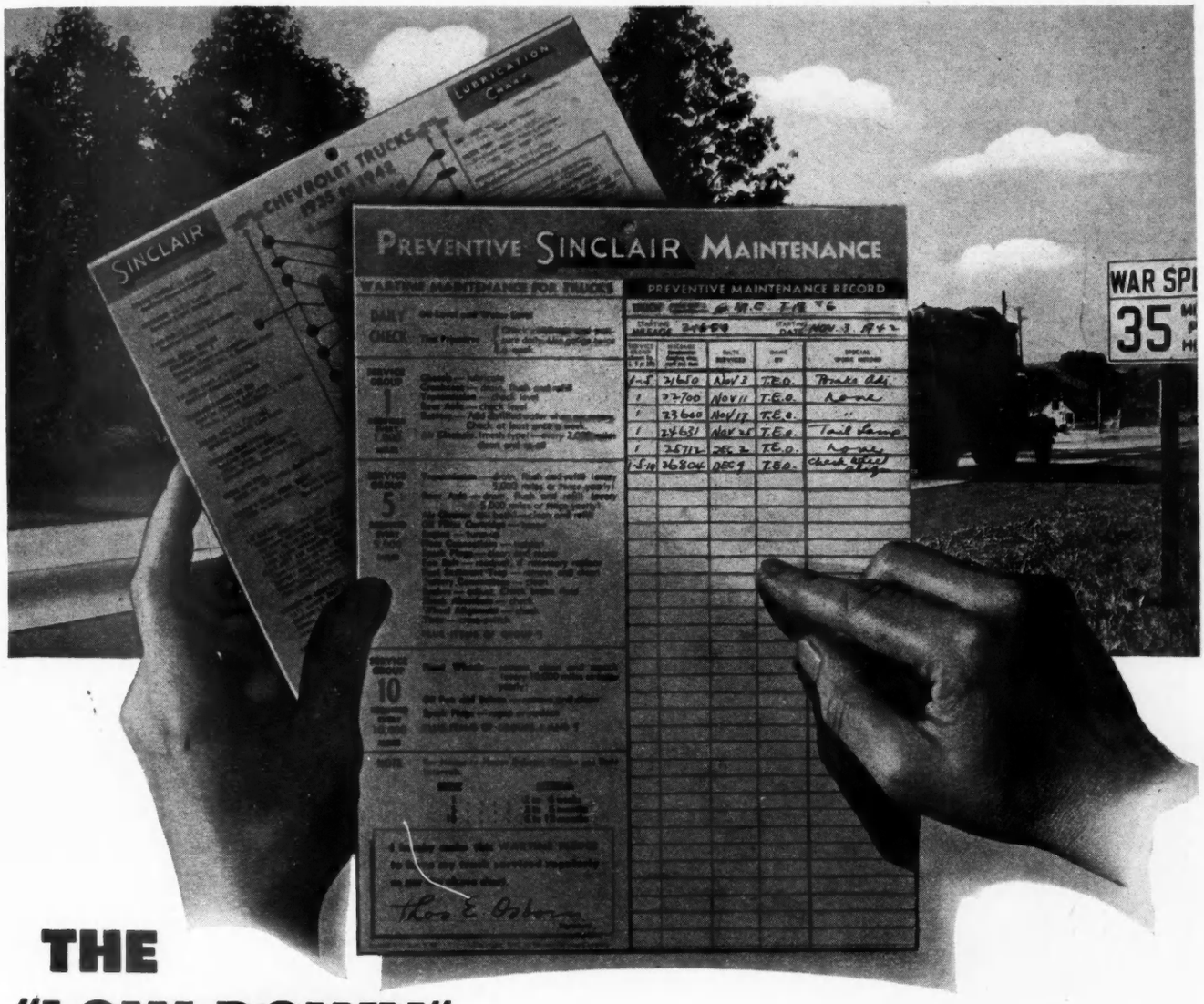
by J. M. Kavanagh, Jackson Heights, N. Y.

There are some trucks that are chronically troubled with blowing the gasket at the manifold and exhaust pipe joint. We cured this trouble and saved a lot of gaskets by making a gland to fit this joint.

We took a length of tubing salvaged from an old exhaust pipe and made it fit the inside diameter of the pipe and manifold so that it extends about 1 in. up into the manifold and 1½ in. into the exhaust pipe. We have been universally successful with this cure.

END

(Please resume your reading on P. 34)



THE "LOW-DOWN" TO BEAT LAY DOWN

Wouldn't you like to have the "low-down" on your trucks that can prevent lay-down?

You can get that "low-down" through Sinclair Lubrication Charts and Preventive Maintenance Records.

The Lubrication Charts show where and tell when to lubricate every bearing, gear, and fitting with *correct* lubricants.

The Preventive Maintenance Charts enable you to keep a complete record of servicing needed and given to every truck.

Unlike tire inspection, lubrication "inspection" is not compulsory. But Sinclair Charts make lubrication "inspection" simple and lubrication servicing sure.

The Charts are *free!* With their "low-down" you can beat lay-down. Trucks *correctly* lubricated have staying power—particularly for staying out of the shop.

There are Sinclair Lubrication Charts for all makes and models of trucks—even special personalized charts for your equipment, if necessary. You can obtain them, without charge, from the nearest Sinclair Office or Agency. Phone or write today. *Save wear with Sinclair.*

SINCLAIR AUTOMOTIVE OILS

FOR FULL INFORMATION OR LUBRICATION COUNSEL WRITE NEAREST SINCLAIR OFFICE

SINCLAIR REFINING COMPANY (Inc.)

2540 West Cermak Road, Chicago • 10 West 51st Street, New York City • Rialto Bldg., Kansas City • 573 West Peachtree Street, Atlanta • Fair Building, Ft. Worth

CONSERVING WITH CONVERSIONS

(CONTINUED FROM PAGE 43)

covers three classifications and the data are based upon actual conversions. The upper part of Fig. 4 shows a 1½-ton unit that by the increase of only 1775 lb. chassis weight, payload capacity was increased by 9225 lb. The medium unit in the center of this illustration shows a gain of 11,728 lb. payload while the increase in chassis weight amounts to a little more than 2000 lb. The conversion of the four-wheel, heavy-duty unit at the bottom of the same illustration shows that it can haul 17,105 lb. more for a chassis weight increase of only 2895 lb.

These are very interesting comparisons, especially inasmuch as an important measure of a carrier's profit is the ratio of payload to dead weight. Numerous other studies of similar conversions show, generally, that one third-axle conversion can haul practically as much payload as two four-wheel trucks. This comparison is modified to a certain degree by local conditions, particularly in certain states that have definite weight restriction limits.

Other third axle conversions are illustrated in Figs. 1, 2, 3 and 5. Specific data pertaining to the before and after chassis weight, tire sizes and payload capacities accompany the illustrations. This information, too, is based on actual conversions.

The 3700-lb. range in payload capacity indicated in Fig. 1, as well as the ranges in weights and tire sizes, takes into consideration the various models and body types of the vehicles being converted in the 1½-ton class.

The cost of third axle conversions varies principally with the type of axle, frame reinforcement, tires and other optional features. The third axle conversion shown in Fig. 1 would cost between $2,600 and $3,450, including chassis, the difference being in the type of driving axle and size of tires. Standard equipment for the tandem drive unit consists of the Thornton Tandem Drive Axle, extra driving axle, frame reinforcement, dual wheels and tires for the extra axle and vacuum power brakes with reserve tank.

The delivered cost of the same type conversion but using a trailing axle would run between $2,150 and $2,500, including chassis, depending on the size tires used. The material in this type of conversion consists of a medium chassis cab equipped with dual tires, to which is added the proper size Truxmore Third Axle, dual wheels, frame reinforcement, tires and vacuum power brakes with reserve tank.

Conversions such as illustrated in Figs. 2 and 5 cost approximately $1,685, including third axle with tires, wheels brakes, springs, frame extension and with four-wheel chain and sprocket drive.

From the foregoing it will be apparent that there are various types of third axle conversions available, enabling the fleet operator to choose according to his requirements and budget.

The examples cited have stressed only the vehicle and essential mate-

(TURN TO PAGE 118, PLEASE)

WESCO
TIRE CHAINS
WHEN IT SNOWS . . . WAR SCHEDULES CAN'T WAIT
Conserve Your Tire Chains
A truck or car is no more dependable than its tire chains . . . when it snows—and tire chains are hard to get due to necessary war restrictions on steel. So here's a friendly tip from WESCO, your tire chain manufacturer: conserve the chains you now have wherever possible.
KEEP YOUR CHAINS
• Clean • Dry • Repaired • Handy
Use chains only when necessary. Take them off for clear road immediately. If your present chains are WESCO'S remember—WESCO Tire Chains are great in emergencies—and that includes the War Emergency of Conservation.
WESTERN CHAIN PRODUCTS CO
1801 W. Belmont Ave.
Chicago, Illinois
U.S.A.
U.S.A.

"To meet increased traffic requirements in Chicago," reads an item in *Bus Transportation*, "10 buses once converted into snow plows were reconverted into serviceable buses."

These people are riding in a converted snow plow

THE CONVERTING OF BUSES to snow plows to buses is merely one example of the ingenuity which patriotic fleet owners and local governments alike are exercising to help solve today's increasing traffic problems.

Indeed, bus operators, drivers, and mechanics are applying all possible ingenuity in order to get every mile out of every vehicle. To help accomplish these results, many bus and truck operators are today specifying Fiberglas*-equipped batteries.

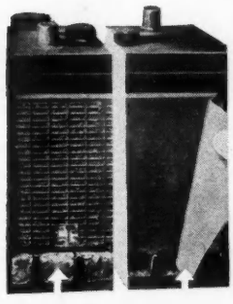
For these batteries, equipped with Fiberglas Retainer Mats, have proved their ability to last up to twice as long as batteries not so equipped.① This is because the Fiberglas Mats postpone one of the chief causes of battery failure —the shedding of the active material from the positive plates. Fiberglas Retainer Mats help keep this material in place, thus greatly increasing battery life.

Furthermore, Fiberglas Mats are porous. They do not retard the flow of the electrolyte. This means excellent cold starting characteristics and higher average output during the life of the battery.

The unusual stamina of Fiberglas-equipped batteries—their ability to withstand continued vibration and rough usage—is one important reason why they are used on many armored cars, tanks, and submarines.

So, the next time you buy batteries remember these facts about Fiberglas-equipped batteries. If your regular battery distributor or automotive supplier cannot supply you, write to us.

① According to impartial tests conducted to meet S.A.E. specifications.



Left: Without Fiberglas Retainer Mats, power-producing material sheds to the floor of the battery, piling up sufficiently to short the cell.

Right: With Fiberglas Retainer Mats, active material is held in place longer on the battery grids, giving longer battery life and more constant power during battery life.

Owens-Corning Fiberglas Corporation, Toledo, Ohio. In Canada, Fiberglas Canada, Ltd., Oshawa, Ontario.

FIBERGLAS*

*T. M. Reg. U. S. Pat. Off.

BATTERY RETAINER MATS

CONSERVING WITH CONVERSIONS

(CONTINUED FROM PAGE 116)

rial savings. When one three-axle vehicle is made to do the work of two two-axle vehicles, numerous other economies are effected for the owner, such as:

1. Two tires and tubes.
2. Lower tire cost. It is possible to replace six large tires with 10 smaller tires at a considerable saving.
3. Increased mileage from all other tires. Road shocks on third-axle jobs are considerably dampened. The smoother ride is easier on tires.
4. One driver. Since military and war industry needs have caused serious manpower shortages, this point carries considerable weight, especially where large fleets are concerned.
5. Dead weight. Less dead weight means more pay weight.
6. Fuel. One three-axle job consumes less fuel per ton of material hauled than two four-wheel trucks of the same capacity. In addition, appreciable fuel savings are being reported due to the reduction of road bumps.
7. Vehicle cost. One third-axle conversion costs less than two four-wheel vehicles.
8. Maintenance cost. One engine, one chassis and one body to service instead of two.
9. Operating time. Since one vehicle can carry a double load, return trips and reloading time can be considerably reduced, if not entirely eliminated.
10. Greater safety factor. Increased tractive properties provide greater stability on turns, stops and dangerous road conditions, especially when such hazards as snow and ice are present.
11. License fees. Many states grant lower license fees or permit more weight to be carried per vehicle on third-axle trucks.
12. Insurance premiums. ICC and insurance company vital statistics show that third-axle jobs are the safest type of vehicle on the road. As a result, most insurance premiums on this type of vehicle are reduced by at least 25 per cent.

Specialists Should Convert

Because of the numerous engineering factors involved in a third-axle conversion, such jobs should be handled by specialists. Proper load distribution, reduction of unsprung weight, correct wheelbase, frame reinforcement and an amplified braking system should not be a matter of guess. Few fleet shops have the engineering knowledge, personnel and equipment to do this type of work satisfactorily.

To insure the availability of material for the conversion of small and medium trucks to those urgently in need of enlarged capacities, WPB has issued Amendment 2 to Conservation Order M-100. The Allocation section of the Office of Defense Transportation has issued instructions that applicants for third axles describe such equipment in the trailer boxes of the PD-310 forms.

END

(Please resume your reading on P. 44)

"LONG LIFE PEAK PERFORMANCE"

Our Slogan has a new meaning Today

Recognized for 24 Years as A Quality Line

ALL ignition parts are made of "critical" materials, and you must conserve them. If you use ignition parts of proven quality you avoid frequent replacement.

Co-operate with Uncle Sam's conservation program. Replace with "Blue Streak" and operate your fleet with the assurance of "Long-Life Peak Peformance".

STANDARD MOTOR PRODUCTS, INC.
37-46 Northern Blvd., Long Island City, N. Y.

FLEET OWNERS!

This SIX-WHEELER

Equals TWO FOUR-WHEELERS in PAYLOAD!

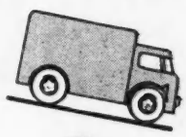
HOW can the Trucking Industry handle its enormously increased war-time load with trucks whose number is rigidly limited? Experienced operators have found part of the answer in the conversion of four-wheel trucks into single unit six-wheelers by means of the TRUCKTOR THIRD AXLE.

This method usually doubles the payload capacity of the truck. At the same time, the six-wheeler, as compared with two four-wheelers, saves one complete truck, one driver, two rubber tires and the extra gas and oil that would be used in operating two trucks, instead of one. These savings are so important that rationing boards favor applications for materials to make six-wheeler conversions, over any other means of increasing trucking capacity.

The six-wheeler is not only economical of materials used in its construction, but it protects highway surfaces—government impact tests proving it easier on the pavement than any other vehicle. Besides, it is the safest trucking unit, as verified by I.C.C. accident reports and insurance statistics.

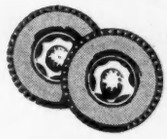
-and Saves

ONE TRUCK }



ONE DRIVER }

TWO TIRES and TUBES }



GASOLINE and OIL }

THE TRUCKTOR CORPORATION
156 WILSON AVENUE • NEWARK, N. J.

Trucktor THIRD AXLES

A BAKERY FLEET'S WAR-TIME RECIPE

(CONTINUED FROM PAGE 44)

abrasives get in there it proves costly. Therefore, I do not believe in continuing the use of old oil and adding new oil to it to prolong its life.

Of course, adding new oil helps the old oil, but it doesn't improve the new oil: actualy, it lessens the effectiveness of the new oil. I do not believe an engine can be operated as efficiently and as economically on a mixture of new and old oils as on new oil alone, especially if the system of operation is to retain equipment in use year after year and keep it up to a proper running standard. Of course, if the plan of operation is to turn in the trucks frequently, and thus have a fleet of almost new trucks constantly in service, it is not so necessary to use new oil throughout and make such frequent change of it. However, under present conditions it may not be possible to get new trucks; thus, the use of anything that will add to the life of the vehicles and lessen the expense of their operation becomes even more imperative.

We do not use a special type of crankcase oil, merely a good motor oil. As to viscosity, we follow the rule of SAE 30 in summer and 20 in winter. When we drain the crankcase we flush the engine before refilling, using a regular flushing oil.

A part of my experience has been the handling of a lot of heavy-duty trucks. I changed the oil regularly at 1000 miles, or less, and in two and one-half years of such operation I never had one burned-out bearing or the slightest other trouble resulting from bad oil or a lack of oil, although there were seven trucks, running about 300 miles a week each.

Our tires average a total of about 31,000 miles; an approximate average of 16,000 miles on the original tire, plus about 15,000 from the recap. Some tires stand two recappings, some only one. We do not usually get quite as much mileage from a recapped tire as from the original. We find that recapped tires are safe if they are watched carefully, but not otherwise. If a new tire has been bumped, or bruised under pressure, this will cause a weakness in the recap, right above the bead, which requires careful handling. We recap when the rubber has worn to the breaker strip. Otherwise, there is no protection for the cords.

We put our recapped tires anywhere on a truck where they may be needed. They are not protected or favored in any way. Recaps are supposed to be as good as new tires, and we treat them as such.

All tires are rotated to a certain extent. New ones are started on the back wheels and then moved straight ahead when worn. We change sides on the rear ones only.

We are very careful about matching dual tires for mounting. We see to it that one is as high as the other. On rear wheels we keep new tires or ones with as nearly the same exact amount of wear as possible. They are checked carefully about once a month, but we glance at them every day or two, not only for difference in wear, but for waviness, or high

(TURN TO PAGE 124, PLEASE)

To keep your trucks on the move with war orders under full load, without road failure and with minimum lay-ups requires fast, thorough, permanent servicing. Hypressure Jenny Steam Cleaner licks the conditioning problems that cause delay. Jenny not only cuts out-of-service time in half but also makes effective repairs certain. It removes accumulated dirt and grease that may add from 50 to 400 lbs. of deadweight; it uncovers cracked and worn parts, missing grease fittings, etc., before trouble starts; it cleans dirty surfaces in a jiffy, saving up to 40% of repair mechanics' time; performs garage maintenance jobs that help speed-up work such as cleaning parts, tools, runways, grease pits, floors, windows and walls. And as Hypressure Jenny saves time, materials and money it pays for itself over and over while it keeps 'em rolling!

HYPRESSURE JENNY DIVISION OF

HOMESTEAD VALVE MFG. CO.

MAKERS OF PEAK PERFORMANCE VALVES FOR 50 Years 1892 1942

P. O. BOX 90 . . . . CORAOPOLIS . . . . PENNSYLVANIA

Safe..ON TIME

Biting hard and deep into snow-packed highways . . . gripping sure as a cougar's paw on slick, dangerous curves . . . driving relentlessly through thick, glue-pot mud — that's the Cooper Non-Directional, a rugged, rough-weather tread that helps get your fleet in safely and *on time.*

Success of the war effort depends a lot on how quickly *you* deliver the goods. Equip your fleet with Cooper Non-Directionals (or Conventional Treads). Exclusive DSC* construction distributes stresses and strains equally throughout circumference of tire — makes it run cooler, longer, with less chance of trouble.

Coopers meet maximum Government specifications — high performance at low cost. Chosen as original equipment by leading truck and trailer manufacturers. Write today for the real brass-tacks figures on these finer truck tires.

THE COOPER CORPORATION · FINDLAY · OHIO

Choose your Cooper Tread
All DSC* Construction

NON-DIRECTIONAL
The famous mud-and-snow tread. Big, deep lugs.

ALL-DUTY
Extra Traction — Skid Protection — Brutally Tough.

SUPER-RIB
Streamlined — Quiet — Rugged — Maximum Mileage.

Cooper Truck Tires

*Distributed Stress Construction

A BAKERY FLEET'S WAR-TIME RECIPE

(CONTINUED FROM PAGE 122)

Kilpatrick forms are simple but adequate. Tire mileage record provides complete history of every tire. Gas inventory on the far right also has daily gas-oil mileage record on the reverse side

Tire Mileage Record

Type _____ Size 6.00-20 Brand —43

TM111 Suburban

Date Code _____ Serial No. _____

Date On	Car No.	Wheel Position	Speedometer Reading ON	Speedometer Reading OFF	Date Off	Miles Run
8-2	19	LF	46823	51244	2-17-41	4421
3-16	66	RR.I.	19500	24500	5-16-41	5000
5-16	66	5th Wheel	24500			

3-3-41 Grimm Rebuilt No. 4600 Date

1st Rep. _____ T. M. 75 No. _____

2nd Rep. _____ T. M. 75 No. _____

Mileage After Rep. _____

Cost - 1st _____ (2nd) _____

Total Mileage _____

% Tread Wear _____

Final Failure _____

T. M. 75 No. _____

COMMERCIAL CAR MAINTENANCE SUPERVISION

GAS INVENTORY

GAS IN TANK (INVENTORY OF PREVIOUS DAY) 907 GALS.

GAS RECEIVED THIS DATE 350 GALS.

TOTAL TO ACCT. FOR 1257 GALS.

LESS GAS USED THIS DATE 262 GALS.

GAS INVENTORY THIS DATE 995 GALS.

CAR NO.	SPEEDOMETER	GAS GALS.	OIL QTS.	OIL DRAINED QTS.
82	25325	6	2	
86	24356	7	2	
89	14545	11		
94	6886	11		
101	4587	7	1	
113	8224	10		
TOTALS				

CONSERVATION . . . VITAL TO VICTORY!

Smooth, positive brake action is essential to longer tire and vehicle life. And that's the kind of conservation that will contribute to victory.

To insure such brake control, reline with GRAFILD . . . the complete line of Friction Materials that are scientifically engineered for each type of brake. For only then can you have that *certain* feeling.

WORLD BESTOS CORP., Paterson, New Jersey

ROLLS • SETS • SLABS • BLOCKS • CLUTCH FACINGS

and low spots, which sometimes develop.

Our drivers do not check tire pressure. We check it ourselves in the shop, twice a week. If there is a drop of more than 10 lbs. in pressure, we figure there is either a slow leak or some other minor trouble. Sometimes this comes from a leak in the valve, which is not noticed at once.

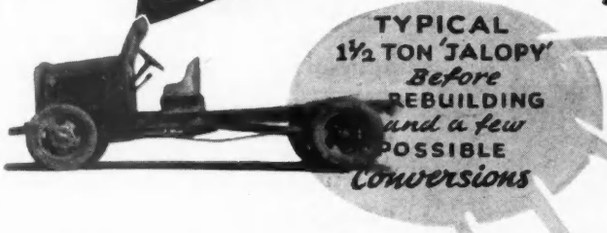
We do not "bleed" our tires. We don't need to in the San Francisco Bay area, because short distances and frequent stops are not conducive to rapidly-mounting pressure. Our trucks going to Modesto, about 90 miles, and to Stockton, 70 miles, and on similarly long trips travel at night, when it is cooler. True, we have a big transport unit, but it is not very heavily loaded; probably carries not more than 5 or 5½ tons. Inflation is checked twice a week and my attention is called to anything wrong, even in the slightest particular.

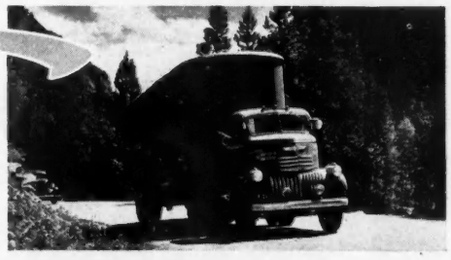
Records of tire performance are kept. They show the date put on, the vehicle number, position on wheel, speedometer readings for on and off mileage, the date removed and the total miles run. Tube repair and minor work on casings is handled here, but if there is a section of casing to be vulcanized, we send it out. We find it sound economy to do our tube repairing, but it would not pay us to install equipment for heavy casing work. Boots, or patches, are used in our casings, but not reliners. We find reliners develop friction and

(TURN TO PAGE 126, PLEASE)

TRUCKSTELL Conversion of 1½ TON TRUCKS

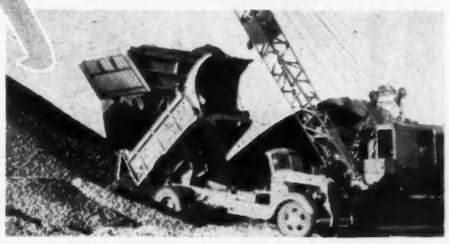
HAS PRODUCED *practically Every Kind of* HEAVY DUTY UNIT





TRUCKSTELL four wheel heavy duty tractor conversion.

TRUCKSTELL-Thornton six wheel dual axle drive conversion.



TRUCKSTELL heavy duty four wheel dump truck conversion.

TRUCKSTELL six wheel trailing axle conversion.

TRUCKERS can rely with confidence upon TRUCKSTELL to *"make big ones out of little ones".*

This confidence is justified because an original idea conceived years ago has been proved in the production of thousands of heavy duty conversion units.

TRUCKSTELL lengthens and strengthens the chassis frame for bulkier or heavier loads — installs special transmissions or two-speed axles, with multiple gears, to utilize the power to better advantage — builds six wheel units with third axles that simply trail or drive on all four rear wheels, and provides rubber and brakes that assure satisfactory performance.

TRUCKSTELL distributors know trucking as well as trucks. They have knowledge and experience which enable them to study various problems and recommend TRUCKSTELL conversions that will handle each operation with satisfaction and economy.

Write for the complete TRUCKSTELL story and the name of the distributor in your vicinity.

THORNTON
Four Rear-Wheel-Drive
CONVERSION

TRUXMORE
Trailing 3rd Axle
CONVERSION

CLARK
Automatic Booster
CONVERSIONS

HEAVY DUTY
Clark Axle
CONVERSIONS

EATON
2-Speed Axle

CLARK
SPOKE WHEELS

DIAMOND
Safety Gas
TANKS

WATSON-BROWN-LIPE
TRANSMISSIONS

TRUCKSTELL CLEVELAND
UNION COMMERCE BUILDING

CONVERTERS *of* TRUCKS *for* EXPANDED USEFULNESS

DISTRIBUTORS *of Tested* and *Approved* TRUCK EQUIPMENT

A BAKERY FLEET'S WAR-TIME RECIPE

(CONTINUED FROM PAGE 124)

heat up the tube, eventually causing a failure.

We are strong for gasoline economy. With that end in view, our trucks get an engine tune-up once a month, regularly. We are very strict about this. It consists of going over the points, plugs and carburetor, checking the idling and the valves, as well as anything else that needs attention. We use a timing light, which is factory-made, but no other tune-up instruments. No record is kept of engine tune-ups, but we make sure of thorough and efficient handling by taking the trucks, which are numbered, in rotation.

We are careful in educating drivers, but we find it pays better to trust them to obey the rules, rather than to enforce penalties or to install detecting devices. Of course, the drivers are instructed not to exceed the national 35-mile speed limit, and to shut off the engine when they stop. Governors were installed January 1, 1942. No record of gas savings has been kept, as we put them on to save tires, not gas.

We have frequent meetings of the drivers, the sales manager and the owner. These meetings are partly to train the drivers in the art of selling the company's bakery products, but the drivers are also given instructions in the saving of fuel.

Our trucks carry thermostats, in our effort to achieve temperature control, and in winter we install radiator covers.

Carburetor operation is closely watched, in seeking gasoline economy. When I make the regular monthly check and give the engine a tune-up, I investigate the idling, to see if it is taking the gas. Sometimes the accelerator pump is worn and the motor either back-fires or flattens out and dies, showing the engine is not getting sufficient gas. Then we take off the accelerator pump and the carburetor, replace the worn parts and otherwise put it in shape.

We follow the manufacturer's recommendations in reference to timing the ignition for the fuel. The lower octane rating of the gasoline now in use has compelled us to adjust the spark in an endeavor to eliminate pinging. We have had to retard the spark from two to three degrees. As a result, we are using more gas than before.

To prevent gas wastage through slow starting, we keep the plugs clean and check the water in the batteries every week. As to the choke, whenever we tune the motor we pull the choke to see if it works properly. If it doesn't, we get busy.

We have rebuilt and renewed quite a number of different parts in the past, in our salvage program; such, for example, as the transmission shaft, which we build up and turn. But recently, we salvaged a part which we never had salvaged before. A valve keeper was in pretty bad shape; worn and unfit to continue in use. We always had discarded these under such conditions, so we tried to get a new one. Our usual sources of supply did not have new keepers in stock. Then we tried used-parts salesrooms and one or two other places;

(TURN TO PAGE 128, PLEASE)

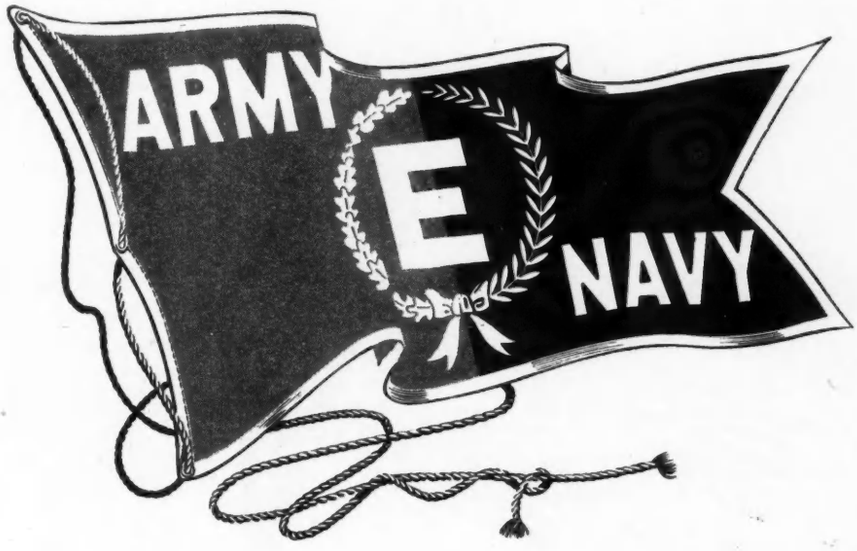
Transportation is just as vital to the war effort as tanks, guns and planes. It's your job and our job to see that the trucks, buses and defense workers' cars are provided with the proper lighting and equipment for safe, dependable transportation. ARROW is meeting the demand of our armed forces, yes, but ARROW is also doing everything possible to fill your orders, too!

On all your requirements for Mirrors, Reflectors, Sealed Beam Headlamps, Fog Lamps, Safety Flares and Auxiliary Lighting of all types ask your jobber for ARROW or write direct. Address Dept. 152.

★ ARROW SAFETY DEVICE CO., Inc. ★
MEDFORD, NEW JERSEY

ARROW IS HELPING TO KEEP THE ARMED FORCES ROLLING

"Great Accomplishment in the Production of War Equipment"



Upon the men and women making up the organization known as A. SCHRADER'S SON, Division of Scovill Manufacturing Company, Incorporated, has been conferred the Army-Navy "E" Award for "Great Accomplishment in the Production of War Equipment."

We take this opportunity to thank the men of the Army and Navy, our employees and our suppliers, whose efficient cooperation has contributed so much to make possible the honor we proudly enjoy.

Schrader

REG U.S. PAT. OFF.

A. SCHRADER'S SON *Division of Scovill Manufacturing Company, Incorporated* BROOKLYN, N. Y.

A BAKERY FLEET'S WAR-TIME RECIPE

(CONTINUED FROM PAGE 126)

couldn't find one anywhere. The truck distributor had them on order, but on account of the present shortage they were hard to get and were slow in arriving. We can't run a truck "on order," and it had to be out on the street the next morning.

I set to work to do a rebuilding job. I welded up the old valve keeper and drilled it to size. When finished, it was apparently as good as new; at least, I've had no trouble with it since. This rebuilding of a valve keeper was a new experience for me. Always before I had junked such parts—that is, sold them to the junk dealer—but now I salvage them, including steering knuckles, pins, bushings, pinion shafts, clutch shafts, etc.

In heavy-duty trucks I have put new teeth in the gears, but it isn't always satisfactory in light trucks. After welding them, they have to be finished by a gear-cutting machine. It doesn't pay, financially, in light trucks, but we may come to the point where we shall have to do it yet in this emergency.

The war has made very little difference in our program of rebuilding major and complete units, for it always was our practice to rebuild bodies, engines, transmissions, axles, etc., wherever possible.

In salvaging, we use metal spraying for the crankshaft, arc welding in the steering-knuckle and similar remodelling and acetylene welding in body work, sheet metals, etc. All of the mechanical parts have to be machined after being welded. An acetylene welding makes the part red hot and the metal is apt to flow before it welds, but arc welding doesn't do that. The intense heat just burns it in and makes a good welding job.

To salvage a part, rather than to buy a new one, is supposed to be good economy, as the salvaged part is presumed to be cheaper than a new one, but it doesn't always work out that way. A big piece of work can be built up more cheaply than the cost of a similar new part, but small parts, such as steering knuckles, etc., can be purchased at less cost—if available. In a big shop, where many men are employed and some are idle part of the time, it is economical to use the idle time of these men to build up the small parts, but not in a small shop, where there are no idle moments.

We find that salvaged, or rebuilt, parts perform just as satisfactorily and efficiently as the original ones.

Our policy always has been, of course, to operate our fleet in the most economical and efficient manner, but now our motto is: "Win the war first; earn profits afterward."

END

(Please resume your reading on P. 45)

Full Time—Top notch Truck Performance with the smallest possible outlay for maintenance costs is of vital importance to our National War Program.

Keep 'em Rolling Economically with the Weidenhoff DISTRIB-U-SCOPE

BUY WAR BONDS

Good overall performance from your engines, so vital in these times particularly depends largely upon the condition of the ignition distributors.

With the Weidenhoff Distrib-U-Scope you instantly get an electrical picture of what's happening inside the distributor on test. Any replacements, or adjustments for point action, timing, spark advance, synchronization of double breakers, etc., are quickly shown and checked for accuracy. Then when the distributor is replaced on the engine you are sure that ignition will be at its best. Full instructions and specifications for all distributors are furnished. You can't go wrong with a Distrib-U-scope. You'll be right all the time with it.

WRITE FOR LITERATURE

Our literature and catalogs give you valuable information on the Distrib-U-Scope as well as on our line of motor analyzers — electronic tachometer — exhaust gas analyzer — battery chargers —fuel pump testers—cell testers —growlers and mechanics service tools.

JOSEPH WEIDENHOFF, INC., 4340-58 W. Roosevelt Road, CHICAGO, ILL.

Muffler Catalog

An up-to-date catalog showing muffler and pipe application data for cars and trucks, is offered by Goerlich's, Toledo, Ohio. A new supplement just added to the catalog, lists application data for all popular cars and trucks including 1942 models. It also includes a special list of army trucks that can be served by the Goerlich line of mufflers and pipes.

Coastal Tank Lines, delivering annually over three hundred million gallons of petroleum products by truck and trailer to the entire Eastern seaboard, is an enthusiastic McCreary tire user. Says H. I. Moul in charge of this great fleet, "We have constantly found this tire to out-wear by a minimum of 20 per cent, all other makes. We have used McCreary tires since we started operations. They are on 85 per cent of our equipment."

McCREARY TIRES

Give More Miles at Less Cost

Proven by real performance on BIG FLEETS for the past 25 years, McCreary Tires have consistently exceeded normal mileage expectancy by a wide margin.

Now that each ounce of rubber must deliver every last possible mile of service McCreary Tire mileage is even more important. The built-in quality of these tires not only gives more original mileage but permits a greater number of recaps still further reducing mileage cost.

SUPERIOR CONSTRUCTION

Fleet operators who keep a keen eye on costs endorse McCreary SUPER SERVICE and SUPER TRANSPORT Tires. They report 20 per cent more mileage on trucks in common carrier service, and 35,000 miles and over before recapping is a common experience. On trailers, mileage of more than 100,000 is usual in well-supervised fleets.

There is a definite reason for this performance. For example, Bibb heat-resisting cord, normally used only in premium tires is standard in all McCreary Tires. This higher-tensile-strength cord, plus careful handling without time-saving shortcuts that impair quality, provides a stronger, more durable carcass. This makes new tires and recaps last longer. Eighty percent of the original mileage on each recapping is usual.

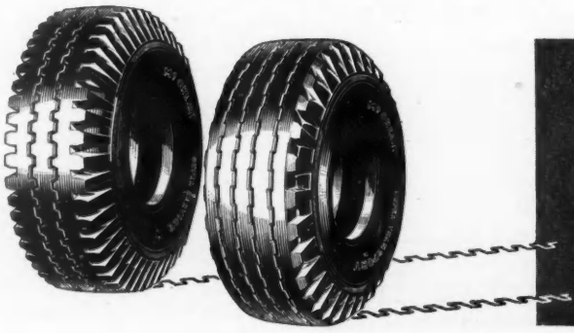
Recapping is Here to Stay!

It has taken the war and the rubber shortage to make the general public and even many big fleet operators realize the economic need for recapping.

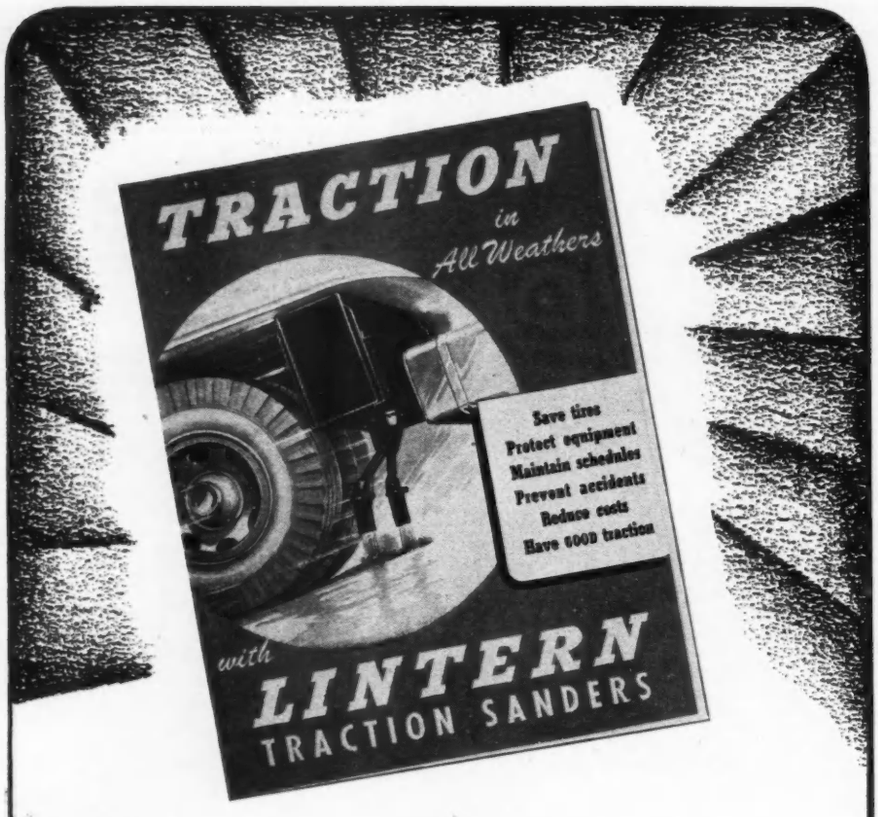
The McCreary Tire and Rubber Company for many years has distributed its products solely through outlets with highest standards of recapping and general tire service. Your McCreary Tire distributor can make you forget your tire worries!

For many years, sturdy tires have been favored by the good recappers who do quality work. McCreary Tires are sold only through distributors qualified to render complete and dependable tire service. You buy a finer tire, with better service to back it up, when you purchase through a McCreary distributor!

McCREARY TIRE & RUBBER COMPANY
INDIANA, PA.



McCREARY
"Built for Longer Service"
TIRES



Send for this BULLETIN

ON SAVING TIRES AND EQUIPMENT

This bulletin explains the advantages of Lintern Sanders in saving rubber and equipment, maintaining schedules, preventing accidents and reducing costs.

It shows how easily and quickly the Sander is attached to the truck, air line arrangement, and other details.

Fill in the coupon and mail today for copy and name of nearest distributor.

Prompt Shipment

THE LINTERN CORPORATION

58 Lincoln Avenue **Berea, Ohio**

The Lintern Corp., 58 Lincoln Ave., Berea, Ohio

Please send me copy of Lintern Sander Bulletin and name of nearest distributor.

(MY NAME) _____ (POSITION) _____

(COMPANY) _____

(STREET, CITY, STATE) _____

6-POINT PLAN ADDS 60% TO TIRES

(CONTINUED FROM PAGE 45)

tion we restrict this tendency to cupping to a minimum, so that it does not seriously affect our total mileage from tires.

The drivers of our out-of-the-city trucks check their tire pressures on leaving for a run, half way to the end of the run, end of the run, and at the half-way point on the return. When we began this careful checking last fall (1941), we found that tires would pick up 10 to 12 lb. pressure in a hundred miles, and in warm spring and summer weather as much as 15 lb. Therefore, the drivers are instructed to bleed the pressures down to normal at the checking points. This procedure is necessary both ways because these long-distance trucks bring back heavy loads of ice cream and milk containers on their return trips, so they are well loaded both ways. On these trucks we consider 65 to 75 lb. as the proper pressure. On heavy trucks, the 9.00-20 tires are kept at 75 lb. On 7.00 and 7.50 we use 65 to 70 lb. pressure.

We believe in bleeding the tire pressures regardless of what experts may say, because our climatic conditions here in the Southwest are different. It is not uncommon for temperatures to run from 45 degrees in the morning to 85 degrees in the afternoon. The hot sun in our mile-high altitude makes the paving hot, even on days when it's cool in the shade.

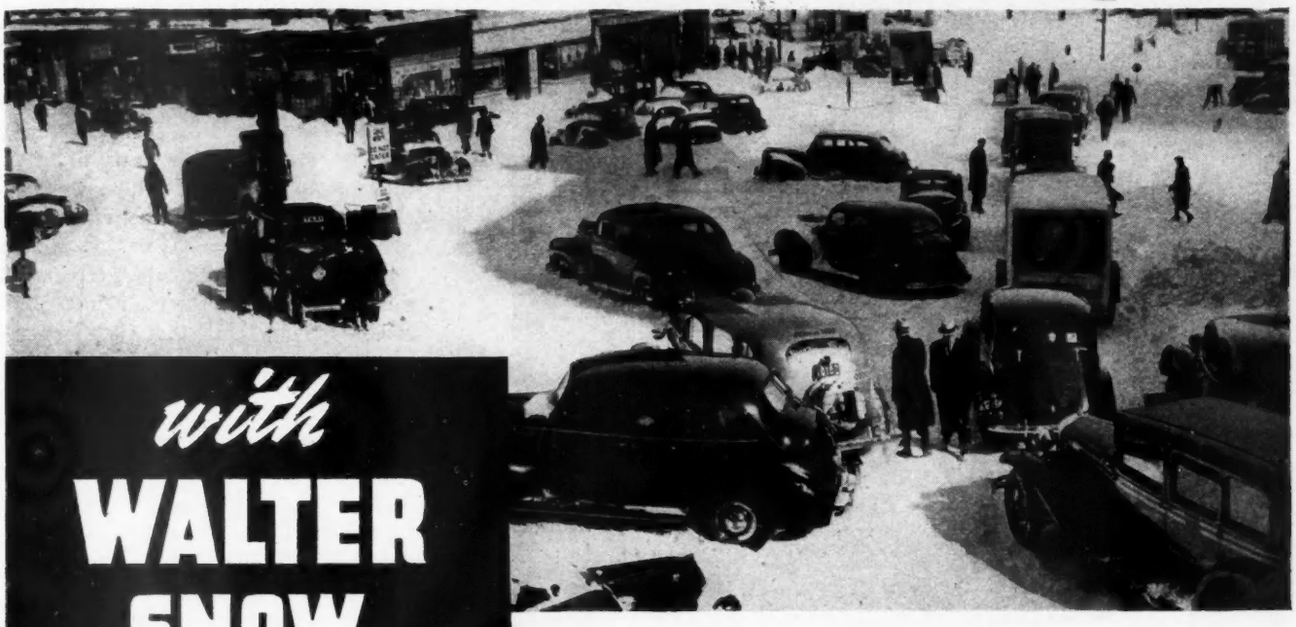
A drop in tire pressure of 8 lb. to 10 lb. is a sign to our drivers that there is something wrong, and that the tire should be turned over to the mechanic for inspection.

Inflation of tires on our retail and suburban trucks is checked daily by the mechanic whenever they come in from a delivery run.

We do not use reliners or inside patches. We believe that when a tire can no longer be vulcanized it is not safe to use at all. We arrived at this decision before the war set up a tire stringency, and there was no reason for taking any chances. It wasn't a matter of how much mileage we could get out of a dangerous tire. The fact that it would go out unexpectedly was enough. Our experi-

(TURN TO PAGE 132, PLEASE)

Prevent Traffic Paralysis



with

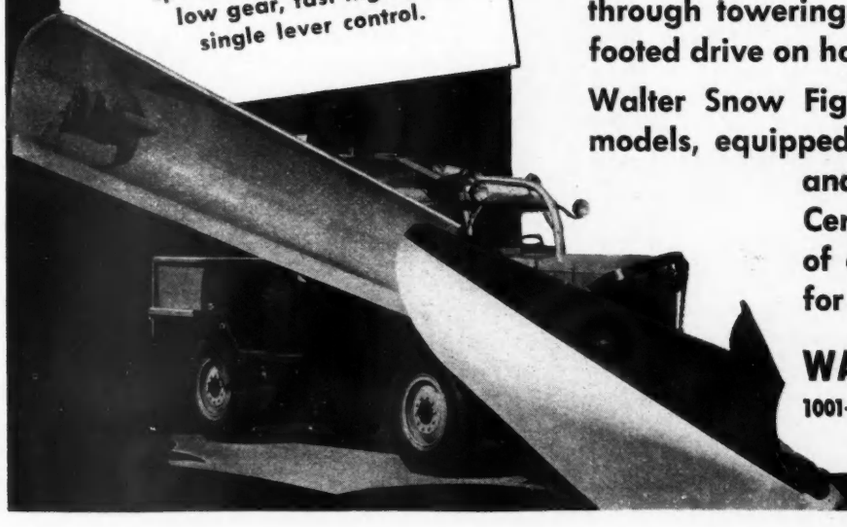
WALTER SNOW FIGHTERS

Walter Features:

Automatic Lock Torque Proportioning Differentials.

Suspended Double Reduction Drive with less unsprung weight, larger gear capacity and higher ground clearance.

Tractor-type transmission, 10-to-1 range, with 6 forward speeds, 2 reverse, powerful low gear, fast high gear, single lever control.



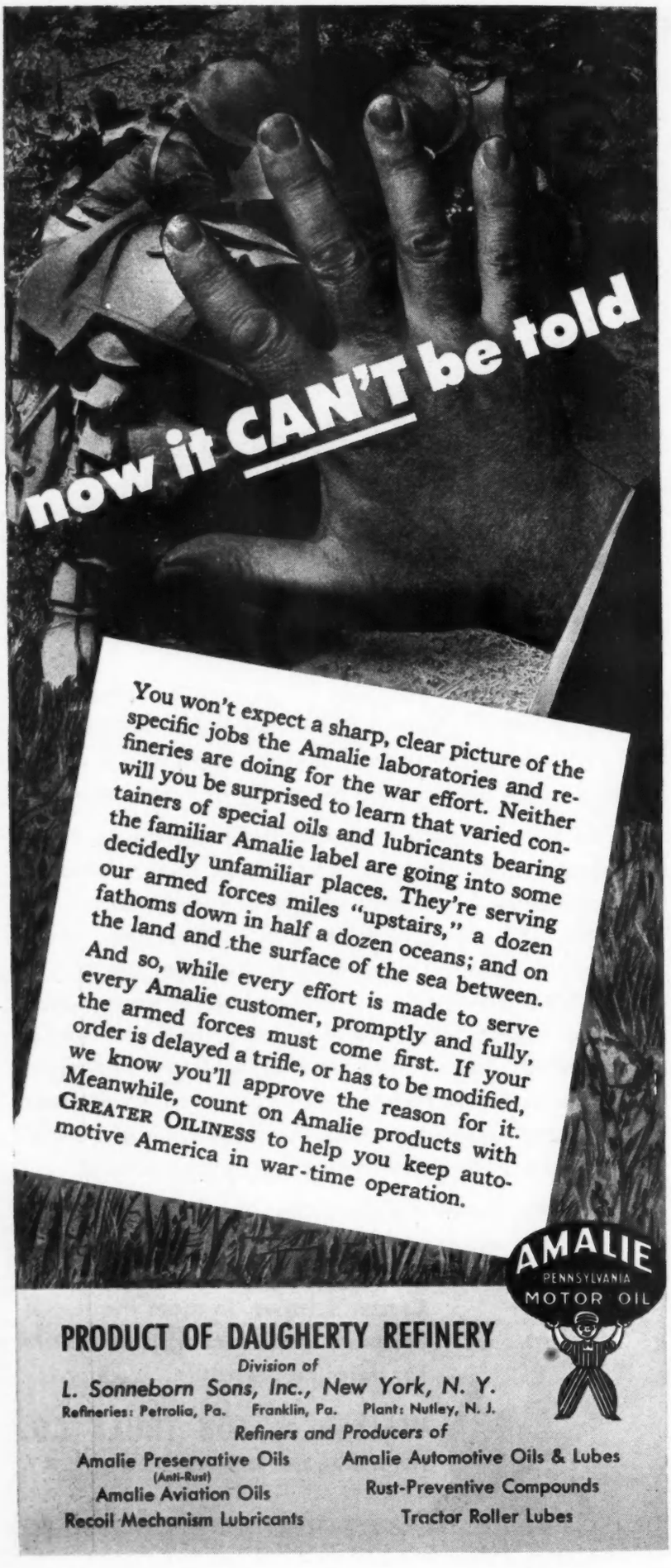
ANY traffic tieup in your community this winter can stop the flow of arms, men and military supplies on the very day they are needed most.

Be on your guard against traffic paralysis. Fight snow and ice to a finish with snow removal equipment specially designed for the job . . . WALTER SNOW FIGHTERS. With the super power and extraordinary four-wheel traction of Walter 4-Point Positive Drive behind your plows, the worst blizzard is quickly brought under control. This unfailing power-plus-traction gives Walter Snow Fighters their great blasting force through towering drifts and their steady, sure-footed drive on hard-packed or icy surfaces.

Walter Snow Fighters are available in many models, equipped with various types of plows and levelling wings, plus Walter Center Scraper, to meet the needs of every winter condition. Write for detailed literature.

WALTER MOTOR TRUCK CO.

1001-19 Irving Ave., Ridgewood, Queens, L. I., N. Y.


now it CAN'T be told
You won't expect a sharp, clear picture of the specific jobs the Amalie laboratories and refineries are doing for the war effort. Neither will you be surprised to learn that varied containers of special oils and lubricants bearing the familiar Amalie label are going into some decidedly unfamiliar places. They're serving our armed forces miles "upstairs," a dozen fathoms down in half a dozen oceans; and on the land and the surface of the sea between.
And so, while every effort is made to serve every Amalie customer, promptly and fully, the armed forces must come first. If your order is delayed a trifle, or has to be modified, we know you'll approve the reason for it. Meanwhile, count on Amalie products with GREATER OILINESS to help you keep automotive America in war-time operation.
AMALIE
PENNSYLVANIA
MOTOR OIL
PRODUCT OF DAUGHERTY REFINERY
Division of
L. Sonneborn Sons, Inc., New York, N. Y.
Refineries: Petrolia, Pa. Franklin, Pa. Plant: Nutley, N. J.
Refiners and Producers of
Amalie Preservative Oils (Anti-Rust)
Amalie Aviation Oils
Recoil Mechanism Lubricants
Amalie Automotive Oils & Lubes
Rust-Preventive Compounds
Tractor Roller Lubes

(CONTINUED FROM PAGE 130)

ence has been that reliners unbalance the tire and make it wear faster. For one thing, you have to carry higher pressures when using reliners. The carcass is broken and all you can do is guess when it will blow out.

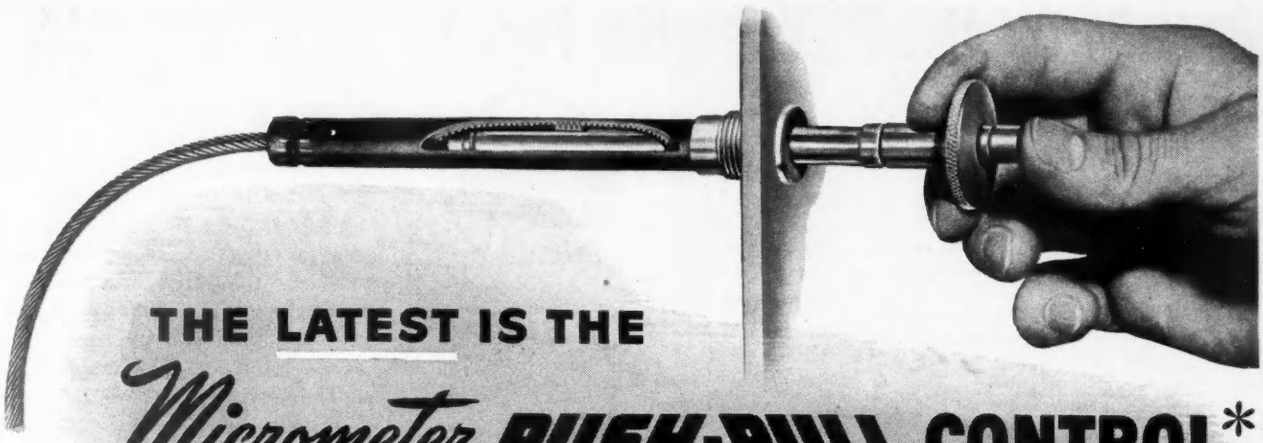
In our part of the country, a road failure can cost a considerable amount, as the nearest service garage may be, and usually is, forty or fifty miles away. For road failures we call the nearest reliable garage, and these are only at larger towns. Between Albuquerque and Gallup, for example (139 miles), there is just one sizable town, and that is Grants, about half way. Grants is 78 miles from Albuquerque and 61 miles from Gallup. The situation is little different whichever way you travel out of Albuquerque.

The second thing we did, in the fall of 1941, was to establish lower speeds on all vehicles. We made it a rule that drivers hold their speed under forty miles per hour. This was at a time when such action was entirely voluntary. We posted sticker notices in the cabs of the out-of-city trucks, and set up a penalty of layoff for disregarding the speed limit we had decided on. We did not have to exact the penalty many times. Our men realized that we had good reason to conserve our rubber. Anticipation of the rubber shortage was very keen in the Southwest. We have long distances to cope with out here and are entirely dependent on our own transportation in serving many localities, and in getting around the state, as a traveling man does.

With nothing else to attend to, our mechanic has a pretty good idea of the mileage of every tire in our fleet. When he wants to check up on a tire now (since the tire rationing has caused us to keep mileage records), all he has to do is to find out how far the truck has gone with that tire on it. The records show when the tire was installed on the truck, and also how far the truck has gone each week.

This man is a good judge of rubber and depends on his own sense of sight, feel and touch, instead of individual tire mileage records. In this country the roads traveled by our trucks are of many kinds. The steep grades in the hills make a difference. Mileage on one run would have a far different effect on tires

(TURN TO PAGE 134, PLEASE)



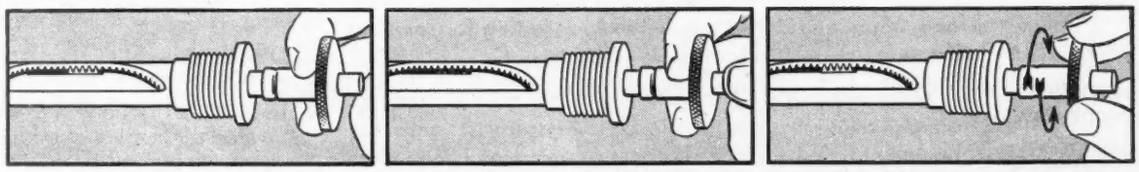
THE LATEST IS THE *Micrometer* PUSH-PULL CONTROL* — FOR ACCURATE ADJUSTMENT

Here's a cross-section view of a **PUSH-PULL CONTROL** developed to meet the need for adjustment or control within almost infinitesimal limits—just one example of many special controls developed for American fighting automotive equipment.

In your planning for peace-time production remember this flexibility. Wherever you want remote manual control, **PUSH-PULLS** can handle the job—give exact, trouble-free, rattle-proof control for the life of the vehicle.

Glad to figure with you—for war production today or for civilian use after victory.

One size and type only—a rugged, he-man control. Also made in the same size with station positions but no other adjustment.



THREADS ENGAGED
Micrometer adjustment by turning knurled button

THREADS DISENGAGED
Press thumb to disengage threads for instant major adjustment

ROTATES FORWARD OR BACKWARD
Button rotates in either direction for forward or backward adjustment

AUTOMOTIVE AND AIRCRAFT DIVISION 6-235 General Motors Building, Detroit • 695 Bryant Street, San Francisco

AMERICAN CHAIN & CABLE COMPANY, Inc.

BRIDGEPORT • CONNECTICUT

ESSENTIAL PRODUCTS . . . AMERICAN CABLE Wire Rope, TRU-STOP Emergency Brakes, TRU-LAY Control Cables, AMERICAN Chain, WEED Tire Chains, ACCO Malleable Iron Castings, CAMPBELL Cutting Machines, FORD Hoists and Trolleys, HAZARD Wire Rope, Yacht Rigging, Aircraft Control Cables, MANLEY Auto Service Equipment, OWEN Springs, PAGE Fence, Shaped Wire, Welding Wire, READING-PRATT & CADY Valves, READING Electric Steel Castings, WRIGHT Hoists, Cranes, Presses . . . *In Business for Your Safety*

Where Do You Use KEY Graphite Paste?

Engine Gaskets

Gasoline Lines

Batteries

Use Key Graphite Paste for sealing thread, gasket and other connections where oil, gasoline . . . oily liquids of all types . . . and *heat* are encountered in service.

Engine Gaskets . . . Cylinder head and manifold gaskets should be sealed with Key Graphite Paste. The heat of the motor will cause the paste to expand, making an oil-tight joint . . . insures against gasket blow-outs.

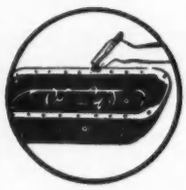
Gasoline Lines . . . Gasoline has no effect on Key Paste; it can be used for sealing the joints anywhere throughout the gasoline system.

Save the Batteries . . . Sulphate corrosion can be stopped by applying a coating of Key Paste to the terminal posts of the storage battery.

Makes Crankcase Leakproof . . . If the crankcase gaskets are sealed with Key Graphite Paste they will stay sealed without any chance for oil leaks to develop.

Stops Transmission Case Leaks . . . Transmission grease is very penetrative and manages to find a way out, somehow or other . . . but not when Key Paste is used.

And Differentials . . . If grease works out of the differential housing the gears will soon be telling about it to the whole world. Clean and paint the gaskets with Key Graphite Paste.



Crankcase

Transmission

Differentials

Key Graphite Paste preserves threads . . . preserves gaskets . . . enables them to be re-used . . . a vital factor in today's servicing of motors. Start using Key Graphite Paste in your shop NOW!—Write for a liberal free sample today. Give company name.

KEY COMPANY
EAST ST. LOUIS, ILL.

2612 McCasland Avenue — East St. Louis, Illinois

TRUCK CONSERVATION TIPS

SAFE CLEANING of MOTORS and CHASSIS

You can make the motor and chassis cleaning part of your fleet conservation program a simple and safe operation. For, the Magnusol method of removing dirt and grease eliminates the use of expensive equipment . . . the need for experienced operators . . . disagreeable odors and dangerous fumes . . . waiting for solutions to heat . . . and inflammable solvents.

Magnusol takes the "cling" out of grease and oil. Simply dilute with low-cost solvent—spray it onto the equipment to be cleaned—let penetrate and then flush off with a pressure stream of water.

Keeping your truck motors and chassis clean by the Magnusol method will save you time and money as it has for hundreds of fleet operators throughout the country.

WRITE FOR YOUR COPY

Get the complete story on Magnusol together with many other cleaning short-cuts in the 50-page "Fleet Operators Cleaning Handbook".

MAGNUS CHEMICAL COMPANY

Manufacturers of Cleaning Materials, Industrial Soaps, Metallic Soaps, Sulfonated Oils, Emulsifying Agents and Metal Working Lubricants.

38 South Avenue — **Garwood, N. J.**

Magnus CLEANERS

(CONTINUED FROM PAGE 132)

than mileage on another. There is little uniformity of road conditions in a country where a handful of population supports a considerable network of highways.

Furthermore, the dryness of our climate affects tire surfaces, somewhat as the desert affects men's faces and hands, and this effect is a fair measure of the tire's age and resiliency.

The mechanic attends to rotating tires on all trucks, matching duals, etc. The maximum differential which he permits between the inside and outside tires on duals is 1/8 in.

In the spring of 1942, we were the first dairy in our territory to inaugurate every-other-day deliveries to domestic consumers of our products. We were, of course, better prepared than some operators, because for two years we had been using insulated trucks in which we were able to hold the temperature below 50 degrees in all weather.

At the time of this writing we are expecting delivery on a new type of refrigerated truck that will carry not only milk and cream, but ice cream, butter and other dairy products.

Out of 10 retail trucks we were able to retire three. These are alternated with the others in service just enough to keep their rubber alive and motors in good shape. That is, about every third week. To alternate them day by day would be extravagant, as it costs less to keep one truck in operation than two. Our total mileage now is from 8000 to 9000 miles per week.

This mileage represents a 42 per cent reduction from what it was a year ago. Part of this saving was made by eliminating all unnecessary long trips. We took off one route out of the city that was 100 miles each way.

From this it will be seen that we formerly operated our delivery fleet about 20,000 miles per week. We now have only three long routes using heavy refrigerated equipment. A fourth vehicle is out of service, as in the case of the retail trucks. This, too, is alternated every third week. Perhaps it's the climate, but for some reason rubber deteriorates very fast in the Southwest when it is standing still.

END

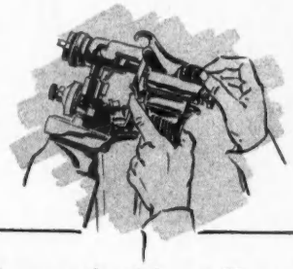
(Please resume your reading on P. 46)

"DULUX" INCREASES SPRAY GUN FIRING POWER!

REG. U. S. PAT. OFF.

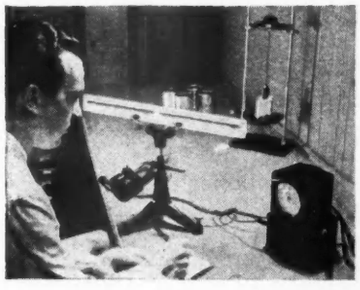
☆ *More paint jobs per man-hour!*

☆ *More months per paint job!*



▶ Men, machines *and munitions* are the ticket to Victory! In your paint shop, you can't find better ammunition than Du Pont DULUX . . . to lick the problem of manpower shortage and to keep your fleet *delivering the goods.* Look (*below*) for four ways DULUX increases your spray gun firing power.

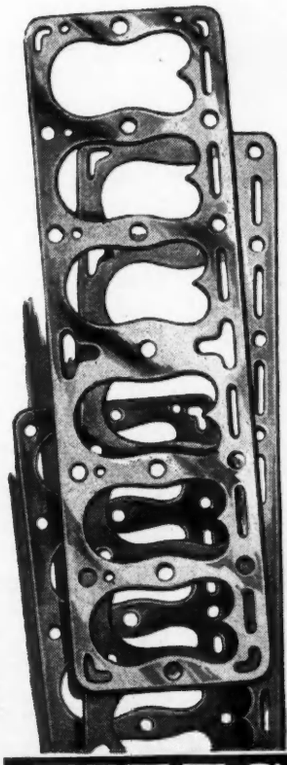
1. It goes on easily, dries quickly. Gives high gloss without rubbing. Cuts labor cost of painting, saves manpower. Gets the truck rolling sooner.
2. Gives longer life with full color, gloss and protection. Trucks go to paint shop less often—spend more time on the road.
3. Gives a hard, tough film that resists scratches and bangs—for full protection against rust.
4. Makes the fleet sparkle. Keeps it always looking its best.



MEET A "THIXOTROMETER" . . . You don't have to pronounce it to benefit from it. This laboratory device measures viscosity . . . to *pre-test* famous DULUX Finishes. Viscosity influences the flow and leveling of a finish—important factors for efficient spray painting. An accurate *pre-test* of viscosity is made on every DULUX Finish . . . before it's offered to you!

E. I. DU PONT DE NEMOURS & CO. (INC.)
Finishes Division, Refinish Sales, Wilmington, Del.

FITZGERALD GASKETS FOR HEAVY DUTY



● Fitzgerald Gaskets are designed and built to meet the most strenuous demands of continuous operation—hour after hour, day after day.

The Fitzgerald service is complete, including gaskets, oil and grease retainers for every need. You can count on Fitzgerald to give your vehicles 100% gasket performance. See your Fitzgerald Jobber . . . The Fitzgerald Manufacturing Company, Torrington, Conn.—Branches Chicago and Los Angeles—Canadian FITZGERALD Ltd., Toronto.

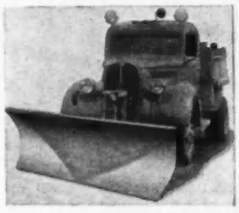
FITZGERALD GASKETS

THE COMPLETE LINE THAT COMPLETELY ...ISFIES

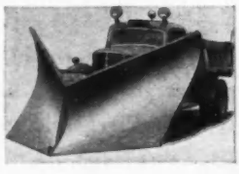
Snow Delays Deliveries

But Not
when you operate a Baker Snow Plow

Few people consider how many things are brought to them daily via highway until there is a hitch or delay in the delivery system. Snow is the worst winter offender; but no delivery fleet or bus line need be stalled or held up by the heaviest snowfalls.



Bakers make trucks from 1½ ton upward efficient snow plows in a hurry. Light trucks handle deep drifts because they roll the snow off the road instead of pushing it. Available in three types: "V", Reversible and One-Way. Being able to serve your customers without delay and delivering needed armament parts on time soon nullifies the small cost of equipment. Hundreds of delivery and transportation companies of various kinds have found Baker Snow Plows mean prompt winter service. Let us show you the inexpensive way to keep your supply lines open.



Send at once for Catalog 829, and for factful, attractively illustrated bulletin — "Snow — Friend of the Enemy."

BAKER MFG. CO.

571 Stanford Ave., Springfield, Ill.

BAKER TRUCK & TRACTOR SNOW PLOWS

QUIZ ANSWERS

(Questions on Page 67)

1. a. He was taking measurements. A Vernier is a caliper that can be read accurately to the thousandth of an inch, and with some even to the ten-thousandth of an inch (0.0001). It is named for Pierre Vernier, who invented the device in 1631.

2. d. On the crankshaft. A Woodruff key, sometimes called a Whitney key, is really just a semi-circular piece of metal. It is used in assemblies where the shaft is of sufficient diameter and the shearing stresses are not too great.

3. b. S.A.E. Thread. For example, with a tap diameter of ½-in. the U.S.S. thread will have 13 threads per inch, the standard pipe thread will have 14 threads per inch, and the S.A.E. tread will have 20 threads per inch.

4. b. All of these are parts of a piston.

5. b. They are parts of a generator.

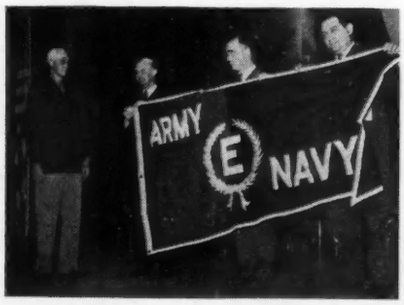
6. d. An Ezy-out is a screw extractor designed especially for removing broken cap screws, studs, set screws, pipe plugs, and the like.

7. b. Tin, but 50/50 solder is rapidly becoming a thing of the past, with tin just about the most critical of all metals and lead the only metal of which we have a surplus. Consequently, the proportion of tin in solder has constantly been lowering, and now silver is even being used as a substitute for the tin.

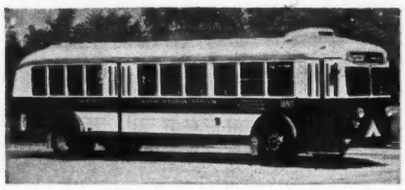
8. b. Orsat apparatus, standard equipment in chemical laboratories, is available in several forms for determining the composition of exhaust gases. By the use of this apparatus, the amount of oxygen can be determined. When there is a considerable amount of oxygen present, a check should be made for faulty ignition.

9. c. Flare fittings. The nut part of the fitting is placed over the tubing. The end of the tubing is then flared out. The fitting is put in place, lodging snugly into the flared end, and the nut is tightened.

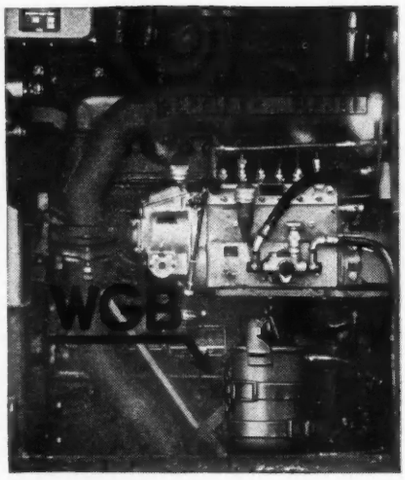
10. b. Extension type. Extension springs are made with the coils tight together and a certain pull or tension is required to cause them to separate. A constant pulling effect is therefore caused by the spring.



Brigadier General Raymond F. Fowler, chief of the supply division, Army Engineers Corps, John L. Collyer, president, and T. G. Graham, vice president of the B. F. Goodrich Co., and George Bass, of the United Rubber Workers of America are shown here after General Fowler had presented the Army-Navy "E" award to the company and all its Akron employees



TWIN COACH DIESEL ELECTRICS *use only* WGB



Keep records and you'll know that WGB oil clarofication is cheapest in the end. Tough, rugged, simple, re-fillable without tools, WGB Clarofiers outlast your gas or Diesel engine. Their low-price cartridges cost less to replace than an oil change. They keep oil amber clear, prevent sludge, excessive wear, and frequent overhaul, and reduce oil changes to a minimum.

Write for big new book explaining WGB clarofication and why it is standard equipment on many of the best known gasoline and Diesel Engines. Book is free.

WGB

OIL CLARIFIER, INC.

KINGSTON, N. Y.

O.D.T's Preventive Maintenance Program

Winner for the second time, Leland James of Consolidated Freightways, Inc., Portland, Oregon, is shown receiving the Trailmobile Trophy from David R. Calhoun, Jr., President of Trailer Co. of America. Marshall N. Terry, Vice-President of Trailer, is shown on the right.

Mayor William Dee Becker, Mayor of St. Louis, congratulates P. S. Baker for Hale-Halsell Company at McAlester, Oklahoma. Mr. Baker is shown receiving the Trailmobile Honorable Mention Plaque awarded at the A. T. A. Convention in St. Louis, October, 1942.

. . . and the Trailmobile Trophy Contest

ENROLL NOW in the Fifth Annual Trailmobile Contest. But pledge yourself first to the *Office of Defense Transportation's* Preventive Maintenance program.

O. D. T.'s Preventive Maintenance program suggests what you can do to make present equipment last longer. The Trailmobile Trophy Contest makes the practice of Preventive Maintenance a daily routine.

The Trailmobile Trophy Contest also provides a symbol of a constant safety campaign in spot-lighting safe operation. This, like O. D. T.'s Preventive Maintenance program, becomes more necessary today than ever before because of the increased shortage of trained personnel and replacement of equipment.

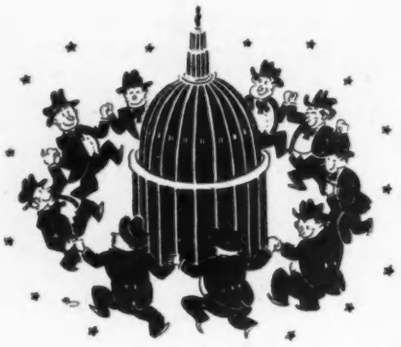
Motor Transport to date has done an enviable job. To win the war, that performance must be not only maintained but heightened under increasingly difficult conditions. Let the Fifth Annual Trailmobile Trophy Contest help you do that job.

WRITE NOW for the "How to Win" folder. It gives complete details on how you can win the Fifth Annual Trailmobile Trophy Award, and how subsequently you can improve your hauling operations in 1943.

★ ★ ★

Pioneering in Planned Transportation for Over 100 Years—The Trailer Company of America, Cincinnati, Ohio—Branches in All Principal Cities.

TRAILMOBILE



WASHINGTON RUNAROUND

(CONTINUED FROM PAGE 25)

It is understood that even improper applications are being honored by ODT but the mileages being allotted are certain to cause squawks and to support their claims for more mileage operators will be compelled to answer all questions initially slighted.

The Routine of Appeals

The routine for making complaints and appeals is simple. As now set up the routine makes a technical distinction between complaint and appeal. An operator who did not answer all the questions on the application form and is dissatisfied with the mileage allotted him, can file a complaint with the ODT District Manager through whose office the certificate was issued. The operator will then be given the opportunity of filing a new application giving answers to all the questions. On the basis of this new application his mileage allottment will be reconsidered. If the operator dislikes the decision he can file an appeal.

An operator who answered all the questions on the original application and is disastisfied with the mileage allotted him can appeal the decision 30 days after the effective date of the Certificates. The appeal must be filed with the ODT District Manager through whose office the Certificate was issued. To get a more favorable decision the appeal will, of course, have to be accompanied by more proof, in the form of operating records, than was originally required.

If the District Manager's decision on the appeal is unfavorable, the operator can appeal this decision to the ODT Regional Manager. If the Regional Manager concurs in the decision rendered by the District Manager the operator can do nothing more until he develops evidence that justifies reopening of the case. Then he starts all over again with the District Manager.

When business expansion indicates the need of a larger mileage allotment, the operator does not file a complaint or an appeal. He files with his District Manager a new application for a new Certificate.

The Keeping of Records

Evidence was accumulating in Washington that operators were concerned about the keeping of records under Order 21. The sample form given operators in the instructions which accompanied Certificate applications does not meet the requirements of all types of operators. The matter is due for considerable clarification but meanwhile ODT wants operators to keep a record of the data requested in the applications and to keep the record in any form that suits their convenience.

21—A Political Issue?

The provisions of Order No. 21 and its administration have the makings of a first-class political issue that may enliven the sessions of the next Congress. The tire inspections, the record keeping in the face of dwindling manpower, the curtailment of operations due to low mileage allotments may result in such annoyance, exasperation and outright rebelliousness that constituents will take their case to their elected representatives and the latter will be only too glad to take up the cudgels in Congress and wage war on what will undoubtedly be termed "bureaucracy gone berserk." ODT Order No. 21 is an unpopular document. Mr. Eastman has recognized this in many of his public pronouncements. He has counselled patience. The order is unpopular with many of the men who make up the Motor Transport Division of ODT. In fact it is the opinion of some that if ODT were to put 21 to a vote of its motor transport division personnel, a majority would vote against it. Opinion in ODT offices and corridors is that 21 is a "brain trust" child. And of course 21 will be less popular with operators once they learn their mileage allotments. All this unpopularity coupled with the sectional antagonism to gas rationing provides the requisites for an old-fashioned Congressional investigation. There were signs on Capitol Hill during the latter part of November that the storm was brewing.

OPA Thunderclap

OPA was toying around with a potential thunderclap that might precipitate the deluge. Contending that the North African campaign would divert gasoline from the Eastern Seaboard states OPA was reported urging ODT to impose a 20 per cent cut in mileage on top of the amount "tailored" into the Certificates of War Necessity. ODT was resisting, but as late as Nov. 20 it was not at all certain that OPA would not have its way.

A Bolt of Lightning

Among the storm's elements was also a bit of potential lightning. This was a report that truck operators might be ordered to sell their stocks of spare truck tires to the Federal pool just as passenger car owners were required to dispose of their spare tires. This issue may be decided after a study of the Certificate of War Necessity applications determine how many tires are in operators' stocks and how this inventory is distributed with regard to types of operators.

Outline of the Future

All these factors—lower mileages, smaller gas rations and elimination of tire reserves—added to the growing shortage of manpower seemed to indicate the course that truck operators would have to pursue in order to make the most efficient use of restricted facilities. Cross-hauling appeared doomed. Pooling of trucks by private and by for-hire carriers seemed a certainty. Pooling of terminal facilities, exchange of customers, restrictions of operating radii loomed as possibilities. The opposition of organized labor—potent up to now—was being overcome by the growing shortage of manpower. It looked as if the war had finally reached truck transportation.

A Dark Cloud

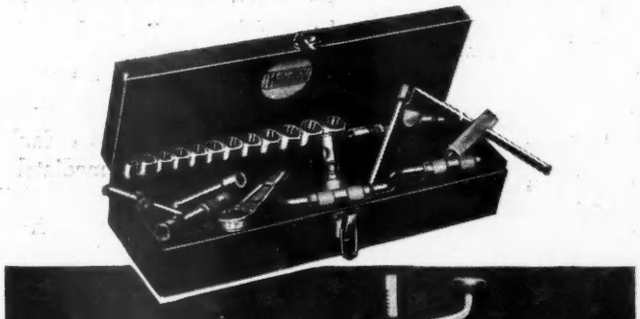
For certain types of private carriers the brewing storm also contains

(TURN TO PAGE 140, PLEASE)

GOOD MEN + GOOD TOOLS

an unbeatable combination!

Make it possible for your men to speed production and facilitate your servicing. Demand the best—Walden Worcester dependable tools. Produced by a plant with 36 years experience in building good tools. Send for catalog showing complete range of sockets, wrenches, tools.



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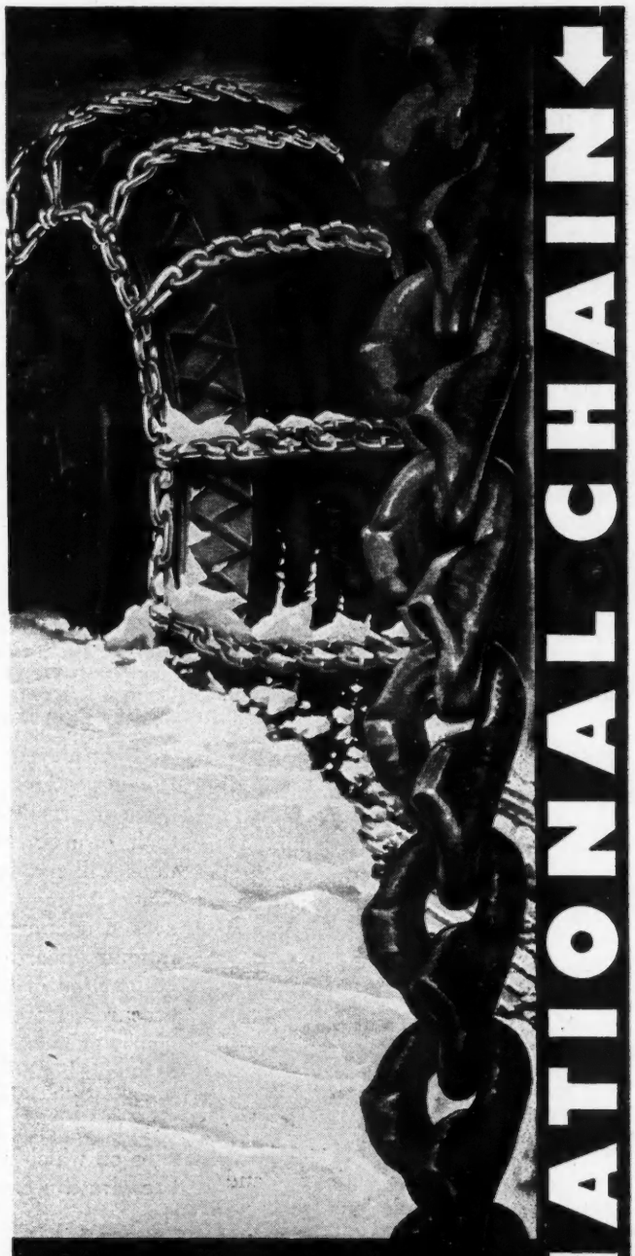
WORCESTER, MASS.

STEVENS WALDEN WORCESTER WRENCHES TOOLS & BOXES



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LOST time — rubber waste — accidents — result from "taking a chance without chains." ★ ★ Campbell Lug-Reinforced Tire Chains give you positive protection. Their exclusive saw-tooth design really "digs in," gives traction "all-ways," lets your units start and stop without dangerous, rubber-consuming skidding and slipping. Campbell's special, molybdenum steel alloy assures much greater chain mileage—much longer chain life. ★ ★ Write for details of this radically different* tire chain. *International Chain & Mfg. Co., York, Pa.*

*U. S. Pat. No. 2,093,547— Canadian Pat. No. 223,568

WASHINGTON RUNAROUND

(CONTINUED FROM PAGE 138)

a dark cloud. It has to do with a shift of manpower from so-called less essential forms of transportation to "war-essential" over-the-road transportation. This has been under discussion by the Labor-Management Committee of the for-hire motor transport industry and officials of the ODT. A recent survey of the U. S. Employment Service revealed that there are at present more than 1100 unfilled jobs in the for-hire trucking industry. Principal shortages are in drivers, mechanics, rate clerks and unskilled help. More women are being hired, but shortages remain. It is suggested that women take the jobs left vacant by the transfer of men from the less-essential carriers.

What Are Essential Goods?

More trouble is in store for certain operators when essential goods and essential operations are officially defined. The War Production Board is said to be struggling with this problem. Until it is solved, it is anybody's guess as to what is essential, less-essential and non-essential to the war effort.

Used Truck Freeze Postponed

ODT was so concerned with Certificates of War Necessity and OPA with nation-wide gas rationing and tire inspection regulations that no time could be given to cleaning up the final details of used-truck rationing, previously slated to begin Nov. 15. ODT's portion of the plan has been formulated and awaits official okay. OPA is still working on the price ceiling. A well-informed guesser said it was unlikely used trucks would be frozen before Jan. 1. One thing is official: the freeze will include a price ceiling.

35 M.P.H. Limit Stands

The truck industry was unable to present enough evidence to convince Rubber Czar Jeffers that certain trucks should not be compelled to adhere to the 35 m.p.h. speed limit. It was contended that this rubber conservation measure would prove wasteful in the case of trucks geared for a higher speed. ODT interceded in behalf of truck operators but could not make out a case. The limit stands until such a time as the industry can prove that it is detrimental.

100% Parts Output in Sight

Some relief is in sight on replacement parts. There are indications that WPB will issue an amendment to its production Limitation Order 158 whereby the present alternative of 75-per-cent-of-1941 figure will be increased to 100 per cent. At last report only the base period remained to be determined.

Speaking of parts the ODT is working on a regulation that will enable operators to order parts without flashing a Certificate of War Necessity. In the case of telephoned orders the Certificate number will suffice.

Fleets Can Inspect Tires

OPA played ball with ODT on tire inspections under Order No. 21 when it permitted fleets to designate their own tire inspectors. Qualifications will not be hard for fleet personnel to meet and all that will be needed is approval of the local OPA rationing board. Applications for the designation of fleet inspectors can be procured from local boards. This plan won't ease the paper work but it should hold down the cost. One of the first things these fleet inspectors might do is get rid of the 5-inch rims on which a lot of 32 x 6 10-ply tires are squeezed. This is bad practice.

Truck Blackout Brainstorm

One bureaucratic brainstorm that may die aborning—which is no more than it deserves—is a proposal to have a "highway transportation blackout." The idea is to choose a typical community in which, on a specific day, all rubber-borne transportation would be ordered to cease operation. The avowed purpose is to make "a lot of people" more aware of the importance of tires. It's a screwball idea and the guy who thought it up should find a cozy spot behind the eight-ball and lay low for awhile. There's enough confusion already.

END

(Please resume your reading on P. 26)

SAFETY MEN CONSIDER CONSERVATION

(CONTINUED FROM PAGE 49)

the Private City Trucking group of the National Fleet Safety Contest of the National Safety Council. He advised that the first essential for a fleet seeking to win a safety contest was a safety director with specific authority and with a safety consciousness which he could put over to his men. Second, a good equipment maintenance program, to give the drivers confidence in their vehicles. "We want our own drivers to know," said he, "that we put safety above everything else—ahead of loading, schedules and delivery." His company avoids hazardous traffic routes and requires that drivers, before entering a parked car in a residential area, must examine the car on both sides and in front, and even look under it, to avoid a possible child accident. This latter rule was adopted only recently after such an accident and which already has caused them to lose the next National Safety contest.

Richard V. Gosson, Jr., Safety Engineer of the southeast region of the Soil Conservation Service, U. S. Department of Agriculture, as a special speaker described the safety program of the service among their hundreds of widely distributed motor vehicles. Their standard agreement with servicing garages requires an "A" preventive maintenance inspection every 1500 miles and a "B" inspection at 6000 miles. When a driver reports a mechanical fault, "it must be corrected immediately, and not tomorrow or next week."

J. J. Helmkamp, fleet Safety Director for Peter Eckrich & Son, Inc., Fort Wayne, Ind., Safety Contest Winner for large fleets in the Wholesale Division, listed as winning factors the development of a high safety enthusiasm and monthly driver safety meetings in which all recent accidents were frankly discussed.

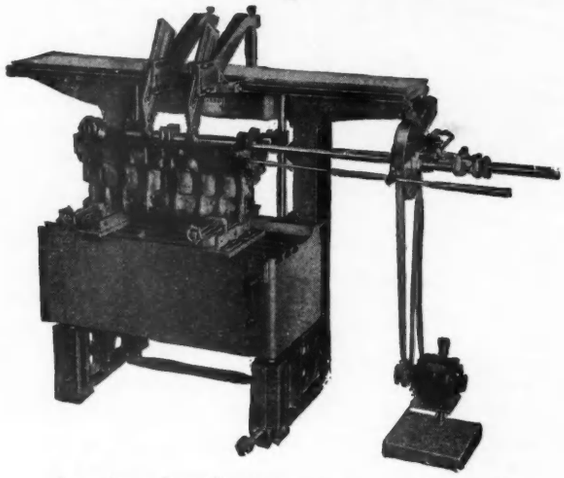
George F. Drake of the Pennsylvania Greyhound Lines, Cleveland, was introduced as "the world's champion safety driver," having driven 2,085,000 miles during 18 years without a single accident. He told about the first safety meeting he ever attended. "We had expected,"

(TURN TO PAGE 146, PLEASE)

Speedy-Accurate-Greater Range

For boring main and camshaft bearings of all Motor vehicles—reestablishing perfect alignment and mirror finish, get the

TOBIN-ARP Line Boring Machine



Its universal application covers a greater range than heretofore possible.

Particulars On Request

TOBIN-ARP MFG. CO.

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Inner Seal

MANUFACTURERS OF TRUCKS • BUSES TRAILERS

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PROTECT INTERIORS WITH

INNER-SEAL

WATERPROOFED

WEATHER STRIPPING

For many years, INNER-SEAL has been standard equipment on all types of heavy-duty vehicles. It is the one outstanding product of its kind in the automotive industry. Keeps interiors clean and dry and free from rain, snow, dust and dirt. Seal windows and doors with this highly efficient weather stripping.

Write for Complete Information

BRIDGEPORT FABRICS, INC.
BRIDGEPORT, CONN.

Established 1837

PERFORMANCE Under Fire

AIRTEX FUEL PUMP DIAPHRAGMS ARE GUARANTEED FOR 50,000 MILES

PRECISION MADE FOR PERFECT PERFORMANCE

"AIRY" TEX

AIRTEX

Precision Made

FUEL PUMPS

AIRTEX 3-WAY SERVICE

1. Diaphragm Kits for minor repairs.
2. Repair Kits for emergency repairs.
3. Complete Exchange Service that gives you factory rebuilt pumps with the AIRTEX 50,000 Mile Guaranteed Diaphragm, at a low exchange price.

True quality shows to best advantage when the going is toughest, whether in a U. S. A. "battle wagon" or an AIRTEX Fuel Pump. Both are built to "take it" under fire . . . to deliver maximum results when the need is greatest . . . to give lasting service.

New AIRTEX Fuel Pumps still available for all cars and trucks.

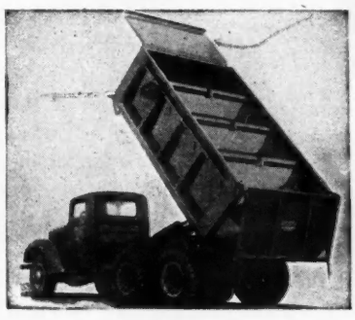
Ask your jobber . . . he knows how your profits climb with the AIRTEX line.

AIRTEX AUTOMOTIVE CORPORATION FAIRFIELD, ILL.

ANTHONY *Super* HYDRAULIC HOISTS

A COMPLETE LINE IN ONE DESIGN FROM—

5 to 30 ton



Anthony offers you the hoist with every desirable mechanical feature built into each of 9 super hoist sizes. Whether you buy a 1½ yard or a 20 yard dump body you get each and every Anthony Super Hydraulic Hoist feature. Here is the line of hoists specially constructed for profitable dump truck operation.

Line drawing shows location of "Rubber Restraining Blocks"

FASTER OPERATION — LONGER LIFE BECAUSE OF THESE FEATURES

- "Push-Pull" dash control
- Double Arm "Power-Speed" lift
- "Low Mounting Height"
- Special "Rubber Restraining Blocks"
- "Telescopic" hoist frame
- "Floating Gear," Pump, Etc.

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ANTHONY COMPANY, INC., STREATOR, ILLINOIS

More fleet operators across the Nation are discovering that one sure, successful way to conserve man-power and SPEED-UP essential war-time maintenance is to use performance-proved Oakite degreasing materials on these SIX important jobs:

1. Degreasing motor parts before repair and overhaul
2. Reconditioning clogged radiators and cooling systems
3. Cleaning motors, chassis by steam-detergent method
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5. Deodorizing food delivery truck interiors
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Illustrated, 36-page cleaning manual, describing these and 15 other maintenance jobs, is yours FREE for the asking. Write for a copy today!

OAKITE PRODUCTS, INC., 26D Thames Street, NEW YORK, N. Y.
Representatives in All Principal Cities of the United States and Canada

OAKITE Specialized **CLEANING**
MATERIALS · METHODS · SERVICE — FOR EVERY CLEANING REQUIREMENT

ATA CONVENTION REPORT

(CONTINUED FROM PAGE 68)

the outset that, "the only man who can make truck conservation mean anything isn't here; probably he is barreling down the highway this minute behind the wheel of one of your big trucks."

Mr. Williams said that motor transport management fully realizes the vital necessity of truck conservation. He pointed out that operators have enjoyed the benefits of preventive maintenance for years, long before the war started. He urged the continuance of this program to obtain maximum life, utility and economy from every unit of the fleet, plus the patriotic desire to support the war effort.

"The truck driver does have a personal interest in maintaining his truck and keeping it rolling," he added. "He wants to hold his job. When the truck stops, his job ends. He may go to war himself. He will feel safer at the front if he knows the supply lines back home are being kept open with our national truck transport in good running order."

He advised operators to sell their drivers on the value of truck conservation, but warned them not to wrap it in the old flag alone. He told the operators to wrap the flag and the idea together in the tough fabric of personal interest and then they would get the job done. "In this way," he added, "The drivers will cooperate willingly."

The opening general session of the convention featured an address by Wade T. Childress, director general of field operations for the War Production Board, who said WPB's automotive branch accepted full responsibility for supplying the replacement parts necessary to keep trucks in operation, and recognized that these vehicles must be kept rolling. He said the picture was "pretty grim," however, because of the shortage of critical materials. There have been enough parts thus far to meet the industry's requirements except for minor isolated shortages, he said, but the outlook is extremely uncertain.

"We have got to recognize that there will be a gradual elimination of movement of things and persons who are not considered in the essential category," he asserted. "From now on, your trucks are war trucks."

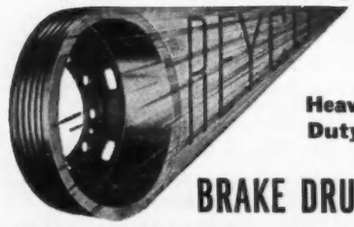
John L. Rogers, director of the Motor Transport Division of the Office of Defense Transportation, who was listed on the program to deliver an address, did not read a prepared speech but elected to "just talk to you boys."

Mr. Rogers said he disliked spreading gloom, but that he would not be frank if he did not tell the truck operators that the road ahead was growing rougher every day. He said all trucks were performing a service vital to the entire nation and emphasized that restrictive measures taken by ODT and other agencies were designed only to make motor transportation retain its efficiency until the fight is over.

"In such times," he added, "it is so easy to overlook the importance of

(TURN TO PAGE 144, PLEASE)

ENDURANCE
EFFICIENCY
ECONOMY



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REYNOLDS MANUFACTURING CO.
Springfield, Missouri

Save Pencil Work
Order and Sell
CARTER
PARTS
by the Package

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Essential transportation can still purchase American Safety Tanks for protection of their loads and their equipment.

ASK YOUR DEALER

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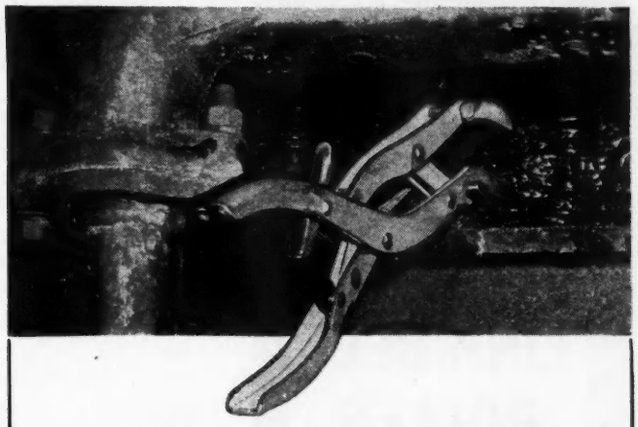

UNDER FENDERS

with manifolds in place!

This picture, taken on a late Plymouth, tells the story of the K-D 900 "Hi Offset" Lifter. Note clear view of valve and ample working clearance! See and buy the K-D 900 at your favorite Jobber's.

K-D TOOLS
The Hustlers for Your Toolbox!

Cole-Hersee

Switches and Connectors when used as replacements accomplish two definite and important functions:—

FIRST
Increased operating efficiency

SECOND
Make up for worn copper wires, which are difficult to replace!

Quality ELECTRICAL AUTOMOTIVE AND AVIATION EQUIPMENT

America First!

During these critical times we must all be considerate of the problems confronting us, therefore, late or incomplete deliveries we hope will not reflect against the good will created between us for over 25 years.

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Save YOUR CRACKED BLOCKS

Use K&W METALLIC SEAL first. It will repair practically all cracked motor blocks and heads.

Only in cases of severe break is it necessary to use the K&W MECHANICAL METHOD.

I AM K&W MECHANICAL METHOD. I CAN TAKE CARE OF THE OTHER 10%
I CAN REPAIR 90% OF YOUR CRACKED BLOCKS AND HEADS. JUST POUR ME IN.
K&W
Metallic
SEAL
THE GUARANTEED METHOD FOR REPAIRING CRACKED MOTOR BLOCKS & HEADS

Each K&W repaired block or head guaranteed permanent for the life of the motor.

For further information ask your nearest K&W Jobber or write us direct.

KERKLING & COMPANY, Inc.
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When You Switch Tires
CHECK
BEARINGS, TOO

LINK-BELT
ROLLER
BEARINGS

Worn front wheel bearings interfere with wheel alignment—cause excess tire wear. Check and replace these bearings with Link-Belt—the bearing that provides perfect alignment and assures longer wear. Also for Differentials and Rear Axles.

Made by the makers of the famous Silverstreak Silent Timing Chain

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LINK-BELT COMPANY
519 N. Holmes Avenue, Indianapolis, Indiana. Warehouses in all principal trading centers 8825

(CONTINUED FROM PAGE 142)

trucks and to miss the real point, which is economy to conserve what we have."

He said the possibility that conditions would compel motor carriers to discontinue at least portions of their operations had been fully recognized by the ICC, and he read parts of a letter from ICC Chairman Aitchison to ODT Director Eastman, outlining plans for safeguarding operating rights.

Mr. Rogers said he believed there was room for much economy with regard to operations between key cities that are served by "a whole host of carriers." The ODT is arranging meetings of such carriers in order that they might work out pooling plans on a voluntary basis, he said, adding that ODT did not want to "go off half-cocked" and believed the operators themselves could best do the job.

Jas. A. Barnwell has been appointed a director of maintenance for Associated Transport, Inc. His headquarters will be in New York, where he will have charge of servicing the 3800 units which Associated Transport operates

For information on
SHULER
AXLES
see advertisement in the
November issue

MAREMONT
DEPENDABLE SINCE 1877

WELDED REPAIRS
SAVE
REPLACEMENT

MARQUETTE
A.C. ARC WELDERS
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TOOLS
RIDGE REAMER
PIN HOLE HONE
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WRITE for prices and full details on the tools you need.
LISLE CORPORATION, Box 1017, Clarinda, Iowa

RUSTBUSTER
Cooling System Protector
replaces worn out inhibitors in old anti-freeze solutions . . . strengthens and gives longer life to new solutions.
Used by transit companies, large and small fleets for years.
CANNON CHEMICAL CO., INC.
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MEEHANITE
The Ideal Metal for BRAKE DRUMS

Developed in cooperation with General Foundry & Mfg. Co. of Flint, Mich.
MEEHANITE RESEARCH INSTITUTE, PITTSBURGH, PA.

OSHKOSH 4-WHEEL DRIVE

For twenty-four years Oshkosh has been building 4-Wheel Drive trucks for all kinds of jobs where the going was tough. Their dependability has long been recognized by Federal, State and County Highway Departments. Recently an increasing number of Oshkosh trucks have gone into War service, in and outside of the United States.

Investigate Oshkosh. Write for descriptive bulletin.

OSHKOSH 4-WHEEL DRIVE SALES AGENCY
OSHKOSH, WISCONSIN

Air Base Construction

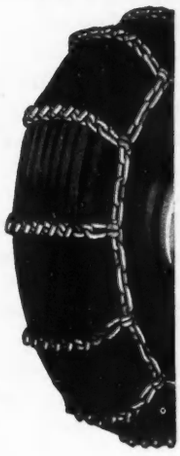
"In Service"—At Home and Abroad

FOR BETTER TIRE CHAIN SERVICE
TAYLOR-MADE CHAINS

Keep Your Fleet "ON ITS FEET!"

BY TAKING CARE OF YOUR TIRE CHAINS!

Through mud, slush and snow—over ice-armored slabs, YOUR Trucks and Cars must be kept moving. Keep your chains in repair—and CONSERVE STEEL.



TAYLOR-MADE TIRE CHAINS

Tough, *Taylorized* Steel, with Taylor rugged slip-defying construction grips the road, keeps men and loads right side up. Taylor Design, and features, mean quickest "on and off."

SEND FOR TAYLOR TIRE CHAIN REPAIR INFORMATION

New literature on *how to get longer service* from tire chains—suggestions for repairs—write for bulletin now.

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The Modern Way with

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CLEANS TRACTORS

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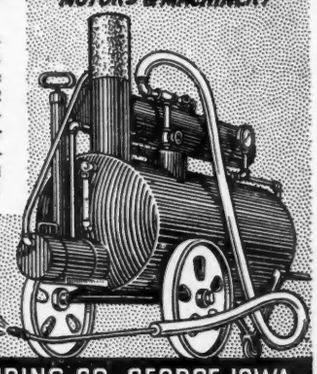
Removes Grease and Grime Like Magic!

Maintain vital equipment with this new automatic appliance that saves precious time and labor. Only the SIEBRING STEAM CLEANER removes grease and grime so efficiently . . . a service necessity for trucks, tractors and machinery. Operates on fuel oil, artificial or natural gas. Its low price will surprise you!



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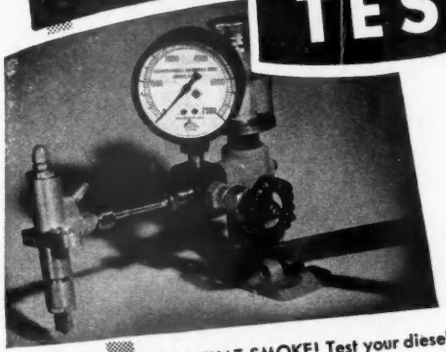

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Repairs Cracked Blocks, Cylinder & Valve Ports in 30 minutes!

Simple, easy to use—no complicated equipment or special training necessary. Quick acting—works in 30 minutes! *Highly Imitated But Never Equalled!*

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See your Ramco Jobber or write Ramsey Accessories Mfg. Corp., 3893 Forest Park Boulevard, St. Louis, Missouri.

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HEAVY DUTY FOR
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It Costs No More for Trucks Specially Built to Fit Your Needs. Have Our Engineers Visit and Analyze Your Operation.
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PAR
AIR COMPRESSORS
(Write for Catalog "A")
LYNCH MANUFACTURING CORPORATION
Defiance, Ohio, U. S. A.
(Formerly Modern Equipment Corporation)

SAFETY MEN CONSIDER CONSERVATION

(CONTINUED FROM PAGE 140)

he said, "that the leader of the meeting, who wasn't a driver, would try to tell us how to drive. Instead, he told us how carelessly we were driving—a much different story. And I decided then that I had been very lucky to get by without an accident. Since then, I have never attended a safety meeting without learning something that helped me in driving." He thinks that good equipment has a lot to do with safe driving; and advises, "not to have any financial troubles on your mind." He believes that for one to become a safe driver he first "must have safety in him—that is, he must really want to do safe driving."

During this session, and also between other sessions, the new Government 35-mile speed limit regulation came in for considerable discussion. One of the champion safety drivers expressed the opinion that such a reduction of speed by a driver in the habit of going considerably faster most times, tended to make him sleepy and more subject to accidents. It was also argued that the slower driving required much more shifting of gears and use of brakes, and that there was more passing by lighter vehicles on hills and curves. As a contrasting statement, the safety director of a large common carrier fleet said he was entirely satisfied with the new speed limitation and that it wasn't interfering at all with his schedules. In fact, he said it was helping to "tighten up" his schedule; demanding more steady driving by his men and less loafing at loading, servicing and eating shops, since his drivers now know that it would be risky to "spurt up," as formerly, to make back wasted schedule time.

END

(Please resume your reading on P. 50)

NEW PRODUCTS

(CONTINUED FROM PAGE 41)

uous, smooth cylinder walls; no bevelling or bell-mouthing at top of cylinder; removes all the ridge in one operation, no resetting, no lap marks, and removes ridges in one minute per cylinder.

Use free postcard for more details

END

(Please resume your reading on P. 42)

WHEN YOU MUST REPLACE BALL BEARINGS
Ask your Jobber for
Ahlberg Ground Bearings
SERVICE PROVEN
TURN IN WORN BALL BEARINGS
AHLBERG BEARING COMPANY
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OVERSIZE REAR WHEEL STUDS
for all TRUCKS
Order from your Jobber
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DAYTON Spoke Type Steel
WHEELS
AIR-COOL
BRAKE DRUMS AND TIRES
FOR TRUCKS, TRAILERS AND BUSES.
THE DAYTON STEEL FOUNDRY CO.
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FULLER
TRUCK TRANSMISSIONS
For easy shifting, quiet operation, hauling power and dependability, be sure to choose trucks equipped with FULLER'S.
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LOWER YOUR FILTER MAINTENANCE COSTS
MICHIANA OIL FILTERS
Write for Bulletin 839
MICHIANA PRODUCTS CORPORATION
Michigan City, Ind.

HOW TIRE EXPERTS CHECK TIRES

(CONTINUED FROM PAGE 47)

ity," according to John T. Staker, head of the new tire conservation service department which the B. F. Goodrich Company has established as a war-time service.

"The elements that make up the 'personality' of a given fleet are likely to vary," Mr. Staker explained, "and include many factors that probably would be given little or no consideration by any one except a trained tire maintenance consultant."

Some of the elements that constitute a job's "personality," are: makes and types of vehicles used (because variation in weight distribution is considered in determining air pressures), type and quality of braking, acceleration, topography of the region served, types of roads and road surfaces, type of load (constant, increasing or decreasing), any unusual conditions encountered in places repeatedly visited (such as salt or other chemicals on driveways) and so on and so forth.

"There really isn't any magic formula," Mr. Staker explains, "and the actual technique of one of our consultants in, say, putting air in a tire, or looking it over for foreign objects or bruises, is no different from that of any competent man. The important thing is to know the things to look for—things that affect tire mileage and performance — and to know and recognize the importance of all factors.

"The main thing we are selling is this point: that the best routine in the world, for maintenance, simply will not prove effective without supervision by trained personnel. This is so because of two things: human nature, and the individual "personality" that identifies every fleet tire set-up."

Under the Goodrich plan the rubber company personnel makes a thorough analysis of fleet operating and maintenance conditions, recommends corrective measures through regular reports and, in short, takes supervisory charge of the whole fleet maintenance job, earning its fees on the basis of vehicle-mile performance.

"We feel that this is not only one of the greatest contributions we can make toward keeping the nation's trucks rolling through the emergency," said Mr. Staker, "but a logical and sound system of operation at any time. Certainly it fits in with the objectives of the government's Truck Conservation Corps program."

Some of the prevalent conditions uncovered in many operations and supplied to fleet operators on initial survey reports are:

". . . we find that of 186 tires checked only 18 per cent were inflated to correct pressure (60 per cent were underinflated, 22 per cent overinflated)."

"Trailer No. 295—left rear dual tires mismatched" (many, many entries of this kind in all reports).

"No standard practice with regard to tire airing. Generally, each man charged with this responsibility has his own ideas as to what constitutes proper air pressure."

(TURN TO PAGE 148, PLEASE)

MORE MILES PER TIRE

Today when every ounce of rubber counts in the war effort you cannot afford not to get every ounce of wear out of your tires.

This can be done only by keeping accurate records and by rotating your tires at the proper time.

Here is an easy way to do it: Use an EVERHOT Electric BRANDING IRON together with the EVERHOT Tire Cost System.

EVERHOT Branding Irons have ten digits (0-9) on the disc making possible any combination of numbers desired. Priced at $35.00 f.o.b., Maywood, Illinois.

Write for free literature and sample forms today and use the information to keep your trucks rolling for the duration.

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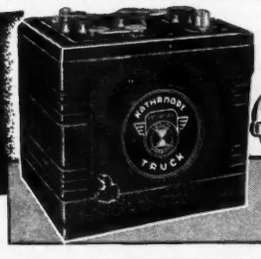
KATHANODE The Long Life BATTERY



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Plymetl Metal Faced Plywood Panels
- Increase Payload Capacity
- Greater Strength and Stiffness Per Pound of Weight
- Require Less Framing
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For SAFETY and REDUCED MAINTENANCE

. . . The self-locking nuts that hold tight under all conditions of vibration and hard service. Test them on your troublesome fastenings.

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FOR EVERY CAR, TRUCK, BUS, AND TRACTOR

A 5th WHEEL FOR EVERY PURPOSE

A-S-F SAFETY FIFTH WHEEL

Territory Available
AMERICAN STEEL FOUNDRIES
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WILLIAMS
SUPERIOR DROP-FORGED TOOLS
HEAVY DUTY TOOLS

They do a *double* job: Keeping America's trucks and automobiles going here at home, and servicing fighting equipment on distant battle fronts. Write for literature.

J. H. WILLIAMS & CO.
"The Wrench People"
DROP-FORGINGS and DROP-FORGED TOOLS
BUFFALO, NEW YORK

(CONTINUED FROM PAGE 147)

". . . 75 per cent of all units were removed from service because of abuse or carelessness, or both."

"Mismatching of dual tires is very prevalent."

"Consideration should be given immediately to the 35 per cent of your . . . tires that are smooth, recut or with breaker showing. We recommend that everything possible be done to protect these carcasses with new tread rubber."

In the first five months of its operation, the Goodrich plan had enrolled an array of accounts operating a total of 5500 vehicles, rolling on 35,000 tires, and aggregating better than 530,000,000 miles of service annually, Mr. Staker reported, with new additions coming in steadily. Virtually all types of commercial fleets were represented, from food distributors to private contract and common carriers, and contractors.

Possibly the most effective way to illustrate the sort of appraisal these expert engineers make when installing the "Consultant Plan" for tire conservation is to reproduce some of the typical excerpts from reports the B. F. Goodrich engineers have made to the clients. The following, chosen in part because of references to things that don't ordinarily occur to the layman as important, are taken from a report to a motor truck common carrier in the middle west:

"Mismatching is quite prevalent and there are a number of valve stems resting on the brake drum or wheel. This transmits heat directly to the tube. Valve stems should be watched carefully to see that they are properly centered in order to prevent chafing and damage to the stem. . . .

"It is noted that all 9.00 tires are on 8 in. rims, most of the 8.25-20 tires are on 7 in. rims, but a few are on 6. These should be changed to 7 in. rims and consideration should be given to a general changeover to wider rims. . . ."

"Most important, a review of the tire air pressures recorded will indicate that your airing program has not been effective . . . wide variations in pressures were found on individual tractors and trailers. This means overinflation and underinflation on the same unit, and where the variation is between the tires on a dual assembly, this means generally that

(TURN TO PAGE 150, PLEASE)

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ELECTRIC FUEL PUMP

- Uninterrupted Schedules
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- Greater Economy
- No Vapor Lock
- Added Protection

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ANY SIZE OR TYPE

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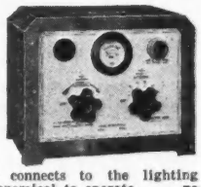

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GRUELING years of toughest service prove Blackhawk Hydraulics superior in safety, rugged dependability and utility. "Service-Proved" Seal found only on Blackhawks. Only complete line of hydraulic hand jacks—models up to 50 tons capacity.

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Just Like Finding New Tires!

The next best thing to getting new tires is to get more miles out of your present tires by correcting the faulty wheel-roll that is mercilessly grinding layers of rubber right off the tread. The Micro-Linor's patented "Tracer-Wheel" makes this a simple matter, revealing the mechanical defects which are even more destructive to tires than faulty camber, caster and toe-in. Follow the lead of big fleet owners! Get a Micro-Linor!

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Free CATALOG

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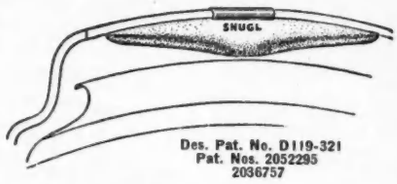
Patented "Tracer-Wheel" Principle

MORE MILES TO TIRE LIFE

with
Snugl
Fade-away
BALANCE WEIGHTS



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Tires must last longer. Get every ounce of wear from your tires by balancing each wheel with SNUGL Balance Weights, the weights with the dove tail clip and bulldog grip—Easy to install. Made in sizes ½ oz. to 1½ lbs. See your Jobber or write direct NOW.

Manufactured by

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Tested by RECOGNIZED TESTING LABORATORIES, PASSING SPECIFICATIONS OF S.A.E. AND I.E.S. MEETING REQUIREMENTS OF I.C.C.
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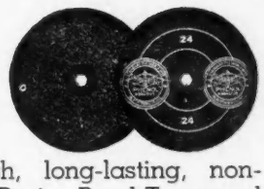
SIOUX Phenol Abrasive Discs

not only cut FASTER and with less effort—but they stay "as COOL as a cucumber" even after long punishing service. They're flexible, tough, long-lasting, non-loading—due to the Resin Bond-Tempered Aluminum Oxide grain and moisture proof fibre back.



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STANDARD THE WORLD OVER

60 Below Protection

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Protects All the Way Down

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"One Nation Indivisible with Liberty and Justice for All."

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The Season's Greetings

One of the real joys of yuletide is the opportunity to put aside the routine and customs of everyday business and in sincerity wish you

A Merry Christmas and A Victorious New Year

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KINGHAM TRAILER CO.
INCORPORATED
LOUISVILLE . . . . KENTUCKY

AMAZING STRENGTH of Plastic
BOWMAN LENSES

will surprise you. They easily withstand all ordinary hard usage, bumps and strikes. They are economical and efficient, too. Their red or amber color will not fade and they are not affected by temperature.

FREE *Sample immediately upon request to Fleet Operators or Jobbers.*

BOWMAN AUTOMOTIVE PLASTICS CO.
4316 W. 192nd Street, Cleveland, Ohio

KING BEE
"... pioneers in safety equipment"
lamps • mirrors • reflectors • flares
AMERICAN AUTOMATIC DEVICES CO.
Harrison, Throop and Congress Streets
CHICAGO, ILLINOIS

(CONTINUED FROM PAGE 148)

one tire is doing all the work, very often causing damage or complete failure to one or both tires. . . ."

"Too many flat or nearly flat tires were found—and only a small percentage of tires were found to be equipped with valve caps . . . we strongly recommend that the tire men be amply supplied with valve caps and valve insides and instructed to use them freely. . . ."

"We find that the tires on your fleet averagely are 65 per cent worn out. This is slightly high, and should run around 50 per cent. . . . Thirty-two tires, based on per cent of wear, are ready for recapping. . . ."

"A number of tires were noted that were worn through several plies. This condition must be corrected at once because of OPA requirements that you must have a recondition-able carcass when applying for a replacement. . . ."

"Suggest you stop, if it is a practice, dumping ashes from the furnace in this area (around loading dock). Nails of all sizes get into these ashes because of shipping crates usually used as firewood."

From the report to an eastern dairy company comes this general comment: "In fact, a review of the inspection forms attached will indicate that nearly every vehicle checked requires some attention to the tires or to some part of the equipment that may affect tires."

In this same report is reference to the highly individual problem of correct air pressure on retail delivery milk trucks which travel only about 13 miles a day, starting with an extremely heavy load but steadily getting rid of that load as the route is covered. The question of getting adequate air pressure at the outset of such a trip without having far too much at the finish is one of those

(TURN TO PAGE 151, PLEASE)

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TRUCK CHAINS
For *double* mileage, *double* economy, use the *double*-bar-reinforced McKay Multi-Grip Truck Chain!
THE McKAY CO., PITTSBURGH, PA., York, Pa.

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OIL FILTER REPLACEMENT CARTRIDGE
QUALITY PROVEN OIL FILTER CARTRIDGES
FOR ALL POPULAR MAKES
REFILL FILTER CO.,
EAST ORANGE, NEW JERSEY

The right braking material for any commercial vehicle
CUSTOM-BUILT SETS
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Thermoid
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Curtis Pneumatic Machinery Division
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BALDOR
ELECTRICAL SPECIALISTS FOR 22 YEARS
Manufacturers of
Electric Motors
Electric Motor Grinders
Battery Chargers
Fast Battery Chargers
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Write for Bulletins
BALDOR ELECTRIC COMPANY
4300 Duncan Ave. ST. LOUIS, MO.

For Engine Bearings
Clutch Plates & Parts
King Bolt Sets
Monmouth is the name

(CONTINUED FROM PAGE 150)

quirks of a truck fleet's "personality."

An excerpt from this report: "Out of a total of 112 tires checked at this particular garage, only 5 were equipped with valve caps. . . ."

Excerpts from the report to a beverage concern operating out of two cities in the east:

"Rim and wheel equipment is maintained in good condition. It is noted, however, that 10.00-24 tires are mounted on 8 in. rims; 11.00 and 12.00-24 tires are on 9-10 rims. A few instances were noted of 10.00 on inside dual positions mounted on 8 in. rims, with the outside dual of the same assembly on 9-10 rims. Probably this installation is for chain clearance in winter operations. Generally, these three tire sizes will do a relatively good job on these rim sizes, but they will do a much better job if mounted on the next larger rims. . . ."

"The use of valve caps is almost completely neglected."

"No program is in effect to break in new tires during cold weather, or on the front tractor wheels where they are not subjected to severe heat and tractive conditions."

"We recommend that all dual tires be mounted with the valves directly opposite each other (180 degrees apart). This will give better balance to the assembly and will save time in checking the airing if everyone always knows where to locate the inside valve."

". . . tire service men must be educated in regard to determining when tires should be repaired to prevent further damage or premature failure. . . ."

Reporting, in a nutshell, the results that the plan had obtained with respect to one large metropolitan

(TURN TO PAGE 152, PLEASE)

Gatke QUALITY
BRAKE BLOCKS
Custom-Bilt For ALL
TRUCKS-TRACTORS-TRAILERS
ASK YOUR GATKE JOBBER
GATKE CORPORATION 228 N. LaSalle, CHICAGO

For a Smooth, Safe Ride at Lower Cost, use
CLE-AIR
Hydraa-Matic Shock Eliminators
★ ★
The Cleveland Pneumatic Tool Co.
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SEE YOUR WALKER JOBBER ABOUT "INDIVIDUAL TUNING"

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. . . THIS TRIO OF NAMES IS YOUR ASSURANCE OF FINE AUTOMOTIVE PARTS AND SERVICE.
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The FREE RUNNING Rings with the SAFETY CENTER UNITS
POWER QUICK . . . and IT LASTS!
See your Jobber or write
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Buell High Pressure Air Horns have a powerful, penetrating tone that gets attention and commands respect. They help to Keep 'Em Rolling longer and smoother by eliminating many time wasting stops and starts. Save tires, brakes, clutches and gears. Cut gas and oil consumption. Available on Priority.
Write for descriptive chart NOW
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TO KEEP THEM ROLLING
Use Genuine TIMKEN BEARINGS
THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

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FOR BETTER BODIES
The mark SUPERIOR GALVANNEALED identifies the most highly developed zinc coated (heat treated) steel sheet for truck and trailer body construction.
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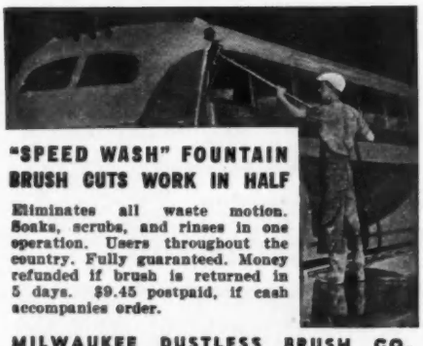

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INTERNATIONAL TRUCKS

(CONTINUED FROM PAGE 151)

cartage concern, operating more than 200 vehicles, Mr. Staker said that, within a few weeks' time, the number of road calls, which previously had been four or five a day, was reduced to two or three a week, and tire changes, which formerly had been necessary at the rate of 60 to 70 a month, now average around 20.

Additional insight into the operation of the Tire Conservation Service plan, from the standpoint of opening up entirely new phases of operational technique to clients, is seen in excerpts from letters the latter have written.

Here's one from a motor truck express company:

"He (the B. F. Goodrich district consultant assigned to the client) proposed low tire pressures and other systems that we did not 'go for' at the time. But in the deal we offered 100 per cent cooperation and, very much to our surprise, the Tire Conservation program has increased our tire mileage and given us a systematic check on our equipment, namely, tires, brakes, springs, body, proper distribution of loads, maintaining proper records, and in all has given us an education in tire conservation that has resulted very definitely in enormous increases in tire mileage and exceptionally low, almost negligible, per cent of tire failures. In fact, our records indicate that we have had only one tire failure on 10.00 x 20 in 1,356,863 intercity trailer mileage, along with approximately 140,000 city tractor miles—making a total of nearly one and a half million company miles operated without a tire failure."

From a transfer company in Chicago came the comment, in part: "I now feel that we have one of the best cost set-ups that I have ever seen in my 30 years of truck operations. I am just now beginning to know my actual tire cost, and learning at first hand, without guessing, the tires we get the best service out of."

A grocery and baking concern reported, in part:

"We were discussing just last week the few failures we have had during the hot summer months this year as compared to other years. While it is true our mileage has been 39 per cent less, the number of failures has

(TURN TO PAGE 153, PLEASE)

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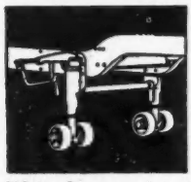

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SKF
BALL AND ROLLER BEARINGS

(CONTINUED FROM PAGE 152)

dropped much more, in fact, by 60 per cent. We feel certain that the tire consultant service was responsible for this saving . . ."

This same concern, responding to the rubber company's request for suggestions for improving the service, made the recommendation that the tire service engineer be supplied with a small camera so that he could make "on the spot" photographs of certain hazards or other conditions, the report on which would be made more effective.

And another common carrier said: "Another thing we want to compliment your company on is the way your consultant has shown us various things wrong with our equipment, things which ordinarily escape our inspectors' notice. He has taught us how to handle tires in ways that we would never have found without that help. . . . You have made us a better housekeeper, too."

Following are brief excerpts called more or less at random from a general file of reports, forming a cross-section that reveals that there is plenty of room for improvement in tire maintenance where no scientific supervision is available:

"On new unmounted tires in storage: Checked the tire room and found storage conditions not ideal and not in accordance with the rubber industry's recommendations to the Government."

"In tabulation of 935 loads it was found that 32 per cent represented overloads from a tire standpoint."

"A common fault is carrying too much of payload on rear wheels (this averages from 78 to 94 per cent)."

"If proper load restrictions cannot be placed on each truck we suggest drivers reduce speeds considerably below normal when heavily loaded."

END

(Please resume your reading on P. 48)

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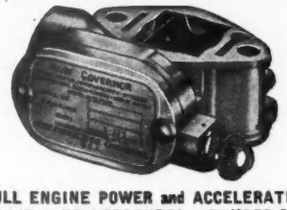
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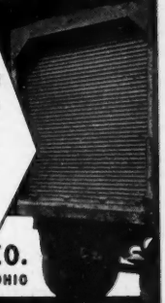
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